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United States Department of the Interior

FISH AND WILDLIFE SERVICE
Oregon State Office
2600 S.E. 98th Avenue, Suite 100
Portland, Oregon 97266
(503) 231-6179 FAX: (503) 231-6195

Reply To: 7365.002
File Name: jondayce.wpd

May 4, 2000

Colonel Randall J. Butler, District Engineer
Portland District, U.S. Army Corps of Engineers
Attn: John Day Drawdown Study
P.O. Box 2946
Portland, OR 97208

Dear Colonel Butler:

We have reviewed the John Day Drawdown Phase I Draft Report and are providing the following comments.

General Comments

1 The report indicates that the proposed drawdowns would result in both adverse and beneficial impacts to fish and wildlife. Even though the project may improve conditions for anadromous fish, they may also be adversely affected. Many uncertainties and unknowns about the relative impacts to anadromous fish currently exist. In spite of this fact, the overall tone of the report minimizes potential benefits from drawdown while emphasizing potential adverse impacts. A comprehensive and objective detailed analysis of all potential benefits and losses to fish and wildlife should be completed and evaluated prior to making a decision concerning the reservoir drawdown.

Specific Comments

2 Section 4.8 Water Quality, page 15. The statements presented in this section are somewhat misleading. The lead sentence indicates that this reach of river is of high quality and has cool temperatures. Summer temperatures frequently exceed both the Oregon and Washington standards for temperature. It seems peculiar that the National Park Service is cited as the source of water quality information for the John Day reservoir reach. We recommend that the Oregon

1. The scope of the Phase I study required an analysis that relied primarily on existing data. If a Phase II study is pursued, a far more detailed analysis would be performed, with data specifically related to fish and wildlife at and around the John Day reservoir.

2. This section has been rewritten. See Para 7.5.2 of the Phase I Study report. More detail can be found in the Water Quality Section of the Engineering Technical Appendix.

Department of Environmental Quality, Washington Department of Ecology, and Environmental Protection Agency be contacted for water quality information.

2 cont. The Water Quality Section does not discuss total dissolved gas (TDG) production at John Day Dam. Table 4 should include total dissolved gas as a water quality parameter. Total dissolved gas is a major water quality concern in the lower Columbia River, especially during times of uncontrolled spill. During uncontrolled spill TDG concentrations downstream from John Day Dam can greatly exceed state water quality standards of 110% saturation. For example, in 1997, TDG levels in the John Day Dam tailrace exceeded 120% from the end of April through the beginning of July (NMFS, 1998). The TDG levels frequently exceeded 140% between late April and late June. The NMFS also indicated that the highest levels of total dissolved gas throughout the Federal hydrosystem in the Columbia and Snake rivers were generally recorded downstream from John Day Dam.

3 Tables 23 and 24, page 60. These tables need to be revised to show the actual fish passage times at John Day Dam, that are in the current Fish Passage Plan dated March, 2000. The juvenile salmonid migration times shown in Table 23 are the dates when 10% and 90% of a specific juvenile fish species or run has passed the dam. For Example, the passage times shown in Table 24 for spring chinook are actually the earliest and latest dates of peak passage. The official counting period for spring chinook at John Day Dam is April 1 through June 5.

4 Section 6.2.5 Construction, page 62. The planning date for the start of spill at John Day Dam is April 20. Spill can begin earlier than this date if the migration of juvenile salmonids past John Day Dam starts earlier than April 20.

5 Section 6.2.4 Dredging, page 62. This section states that dredging of tributaries, including the John Day and Umatilla rivers, would be necessary under drawdown to natural river level. In Section 9.7.1.1, John Day River, it states that dredging on the John Day River is not recommended. Section 9.7.2.1, Initial Dredging, indicates that dredging of the Umatilla River will be relatively minor. This would indicate to us that fish passage into these two rivers is not likely to be adversely impacted by drawdown to natural river level.

Section 7.5.2 Dissolved Gas, page 75. This section does not address the gas dissipation that would occur in a free flowing river, which would be more turbulent than a reservoir.

6 The last paragraph of this section speculates that gas bubble trauma in fish may increase because of shallow water habitat and an inability to escape to deep water compensation depths. Research conducted by the NMFS has found that total dissolved gas readings have been lower in shallow water areas. This is thought to have been due to faster dissipation of gases from shallow waters and because nearshore waters are out of the main current where total dissolved gas saturation is highest.

7 Section 7.17 Aquatic Resource Impacts, page 95. The potential effects of the drawdown on Pacific lamprey have not been described. Lamprey populations in the Columbia River system have declined drastically in recent decades. Existing information regarding the effects of John

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3. Data is taken directly from the Fish Passage Plan with one error which has been corrected.

4. This start date is based on current In-Water Work periods.

5. Reference Engineering Technical Appendix Volume 2, the statements are correct as contained in Section 9.7.1.1, subject "John Day River." For both drawdown scenarios, no initial or future maintenance dredging is recommended for John Day River. Initial dredging as defined in this report is the amount of dredging required to provide for fish passage. The statements are also correct as contained in Section 9.7.2.1, subject "Initial Dredging." For both drawdown scenarios, Umatilla River would have minimal initial dredging requirements and no future maintenance dredging requirements.

Except for some short-term impacts, fish passage into John Day River would not likely be adversely impacted by drawdown to Natural River level. The short-term impacts for John Day River would be with respect to turbidity and sediment supply problems due to drawdown. For drawdown to Natural River level, fish passage into the Umatilla River would be adversely impacted due to two reasons. This includes: (1) short-term impacts relating to turbidity and sediment supply problems, and (2) an initial dredging effort needed to remove some bed material blocking fish passage for the lower 2 miles of the Umatilla River. The initial dredging effort will probably take about one year to implement for all tributary streams impacted by the drawdown of John Day Pool.

The Main Report will be revised to reflect these comments. Specifically, the reference to John Day River must be removed from Section 6.2.4, Dredging, and page 62.

6. Editing and additional text has been added to explain that supersaturated gas levels are likely to dissipate more quickly in shallow water areas, especially when agitated as in rapids or riffles.

7. The scope of the one-year John Day Drawdown Phase I reconnaissance-level study was limited. A reconnaissance-level study is not intended to be comprehensive. As you have indicated, little information concerning the effects of dams or drawdown on species of lamprey is available and, as a result, consideration of effects from drawdown on lamprey was not considered under the Phase I study. Effects of drawdown on lamprey is not required to meet the goals of the Phase I study.

Day and other dams on lamprey is sparse. However, impingement of lamprey has been noted on the fish bypass extended screens at John Day Dam. Upstream passage of adult lamprey may also be affected by fish ladders that have been designed for anadromous salmonids. Effects of each of the project alternatives on upstream and downstream migrations of lamprey should be discussed.

7 cont.

Section 7.17.1 Potential Effects on Juvenile Salmonids, Section 7.17.1.2 Subyearling Outmigrants, and Section 7.17.1.3 Habitat Changes, pages 95 and 96. This introductory section seems to present a bias toward the negative effects of drawdown. It predicts impacts that would result in substantial reductions in natural production of upriver bright fall chinook, but then it indicates the impacts effect are uncertain. In these sections it is not clear what the impact might be on subyearling outmigrants. The first section indicates that the loss of extensive shallow and slack-water habitat in the upper part of the reservoir "might substantially reduce the natural production of upriver bright fall chinook salmon". Further, Section 7.17.1.2 indicates that as a consequence of juvenile fall chinook utilizing the nearshore habitat of the John Day Reservoir for rearing, "drawdown alternatives could substantially affect the various stocks of fall chinook". The next sentence states that the effect on fall chinook production from "reduced reservoir rearing space" is uncertain. Then, the first sentence in section 7.17.1.3 indicates that "slightly more rearing habitat" (instead of reduced rearing space as stated above) could result from reservoir drawdown to natural river. The text should be clarified as to whether the drawdown effect is "substantial" or "uncertain" and if there would be "more" or "less" rearing habitat.

8

Stranding of juvenile anadromous fish should be identified as a potential adverse impact resulting from the initial drawdown to either spillway crest or natural river.

9

Section 7.17.1.2. Subyearling Outmigrants, page 96. This section emphasizes the potential importance of backwaters and nearshore shallows to rearing fall chinook salmon. While juvenile fall chinook salmon use such shallow areas, these sites are also used by abundant populations of exotic fishes such as carp, bass, sunfish, perch, and catfish that may prey upon juvenile fall chinook or compete with them for food.

10

Section 7.17.1.3 Habitat Changes, page 96. This section gives the impression that drawdown to natural river level would only slightly improve rearing conditions for juvenile fall chinook salmon by comparing only total surface areas of rearing habitat between the project alternatives. The acreage and probability figures used in Table 34 were developed by the USGS Biological Resources Division. Conversations with USGS staff indicate that high quality rearing habitat is that with a probability of use greater than 85%. We recommend that text of this section explain that a probability of use greater than 85% is indicative of high quality habitat. Additional wording should be added to the first paragraph of this section indicating that although the total usable area of rearing habitat is similar under the study alternatives, there is a marked difference in the quality of usable rearing habitat. There would be no area of high quality rearing habitat under the existing condition alternative, while the spillway crest and natural river alternatives would provide 367 and 419 acres of high quality habitat, respectively.

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8. The effect of John Day drawdown on natural production of Upriver Bright fall chinook salmon is uncertain, but the potential effect (especially on juvenile rearing) could be substantial. The Phase I report has been edited in an attempt to clarify these points. In addition, an analysis has been added that integrates the results from our analysis of effects on current natural production of fall chinook occurring above McNary Dam and our separate analysis of effects regarding the potential for restoration of fall chinook natural production in the John Day reach below McNary Dam.

9. Drawdown of the John Day pool would have to progress slowly to prevent bank failures and to avoid other problems. While it is possible that a few fish could be stranded as the John Day pool elevation drops, it is unlikely that significant numbers of fish would be affected. Any effect that did occur would likely have very short-term consequences. Analysis of potential problems related to stranding is not required to meet the goals of the Phase I report.

10. The importance of juvenile fall chinook rearing in the John Day reach to the natural production and continued health of Upriver Bright fall chinook salmon is uncertain, as stated in the Phase I report.

While other fish species that prey on juvenile salmonids also occur in habitat similar to that used by fall chinook for rearing, studies on four major predators (i.e., northern pikeminnow, walleye, smallmouth bass, and channel catfish) occurring in the John Day pool indicated that, with the exception of northern pikeminnow, consumption of juvenile salmonids was incidental and at relatively low levels in comparison to alternative prey species. It was found that predation by northern pikeminnow, though it occurred to some extent throughout the John Day pool, was most highly concentrated in a relatively small area (i.e., the tailrace) right below McNary Dam. Chapman et al. (1994) discusses the timing of juvenile fall chinook presence in nearshore areas of mid-Columbia reservoirs and suggests that they rear in these areas early in the year (May and June) and leave them as they reach a larger size and water temperatures increase. Subsequently, other species (including juveniles and adults of introduced species) become more active and move into these areas. This pattern of behavior fits with the limited observations made regarding juvenile chinook in the John Day pool.

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10. (continued)

Regardless of the presence of predators, there is a large quantity of potential rearing habitat for fall chinook salmon within the John Day pool. The current use of this habitat for rearing by fall chinook has been documented, although its importance to fall chinook production is unknown. The Corps point out in the Phase I report that the importance of this existing habitat should be better understood before a decision is made to eliminate it based on the presumption that it will be replaced by habitat of equal or better quantity and quality.

11. The model developed by USGS for assessing changes in the relative abundance of potential fall chinook rearing habitat under the various drawdown scenarios, while based on the best information available at the time, was limited in its capability and applicability in several respects. It considered certain parameters important for discerning rearing habitat quality (i.e., water depth, water velocity, and distance from shore) based on the riverine conditions examined in the Hanford Reach, but was unable to consider other important parameters (e.g., substrate type, presence and type of vegetation and structure) because this information was generally unavailable. In addition, the model was not based on data derived from assessments of rearing habitat used by fall chinook in non-riverine areas, such as in estuaries or in impounded areas where fall chinook are known to occur naturally, and is therefore limited to some extent in its applicability to assessment of habitat quality within those types of habitats.

For potential rearing habitat modeling purposes, the choice of USGS to define "high probability" fall chinook rearing habitat as being those habitat "cells" (10 m^2 areas) possessing measured parameters where 10 or more fall chinook juveniles were observed to occur 70% or more of the time in the Hanford Reach will be used. This definition provides for a reasonable margin of error in the probability of fall chinook occurrence in comparison to use of, say, a 50% occurrence criterion. However, the distinction between "high-quality" rearing habitat (probability of use > 85%) and "high probability" rearing habitat (probability of use > >70%) made by the USGS is arbitrary and probably beyond the model's true ability to distinguish meaningfully among alternative habitat qualities, given the relatively few parameters used in the model to distinguish habitat quality and given potential concerns regarding the model's applicability to non-riverine environments.

Table 3 has been edited and we have added associated text in the Phase I report to better express and address what the Corps feels are some of the limitations associated with use of the USGS model for estimating potential changes in fall chinook rearing habitat under the various John Day drawdown scenarios.

12 Section 7.17.1.6 Total Project Juvenile Salmonid Survival (In-River Survival), page 97. This section (or section 7.17.3 Probability of Improved Juvenile Survival with Drawdown Alternatives, page 100) should point out that juvenile mortalities and injuries associated with turbines and gas supersaturation at the existing John Day Dam would be eliminated with the natural river drawdown alternative.

13 Section 7.17.1.7 Barge Transportation, page 98. This section presents a partial discussion of transportation and highlights the positive aspects of barging, potential negative results of drawdown, and uncertainties of delayed mortality. It also only describes the effect of transportation on chinook salmon. Other species such as sockeye salmon and Pacific lamprey are not addressed. The discussion also fails to describe the uncertainty regarding the adult returns of spring/summer chinook and steelhead to the Snake River system that are barged compared to those that migrate in the river. Ongoing studies indicate that in different years the percentages of returning adult salmon and steelhead that were transported may or may not be higher than those that were not transported.

This section also indicates that barge transportation of juvenile salmonids would cease under the drawdown alternatives because deep draft barges would no longer be able to navigate. It may be possible to use smaller, shallower draft barges to transport juvenile fish from the Snake River dams. Migrating salmon smolts can be held for up to two days until enough fish have been collected to load a barge. Use of smaller barges may also benefit juvenile salmonids by reducing the time they are held before being transported. Use of smaller barges or other means of transportation should be discussed as an alternative procedure.

The Independent Scientific Advisory Board (ISAB) addressed several questions raised by the regional Implementation Team regarding transportation of juvenile salmonids. The ISAB indicated several concerns. These included: 1) that collection and transportation may favor some populations, life history types, and species while decreasing the survival of others; and 2) that there may be differences in the straying of fish that are transported compared to those that migrate in the river. The concerns and conclusions of the ISAB regarding transportation should be discussed in this section.

Section 7.17.4 Potential Effects on Spawning Adult Salmonids, page 103. It should be stated that, except for rare high flow events, migration delays that now occur at John Day Dam would be eliminated with the natural river drawdown. However, this benefit may be offset by adult migration through the natural river system that could be slower than with the existing reservoir (because of water velocities).

The second paragraph should be corrected to indicate that elimination of John Day Dam would eliminate some fallback of adult salmon. There are studies that indicate some natural fallback can occur in areas where dams are not present.

Section 7.17.5 Potential Harvest Benefits, page 105. This section again downplays the benefits of drawdown alternatives by indicating that hatchery production of smolts is twice as high as natural production. This represents only a positive aspect of hatchery production. It fails to

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12. The comment regarding elimination of mortality and injury associated with turbine passage and gas supersaturation at John Day Dam under drawdown to natural river level (Alternative 3) was added under both the discussion of "Total Project Juvenile Salmonid Survival (In-River Survival)" and the discussion of "Probability of Improved Juvenile Survival with Drawdown Alternative" in the Final Phase I report, as suggested.

13. The discussion of barging under "Barging Transportation" focuses on change in juvenile chinook survival rates from Lower Granite Dam to below Bonneville Dam under existing and drawdown conditions. However, it is clearly stated that "these results do not include possible post-transportation mortality effects."

The analytical approach used by the Corps was consistent with that used by the Regional PATH group. However, the Corps used associated model parameters that provided the most optimistic results that were scientifically defendable in favor of John Day drawdown to estimate the maximum potential benefit from drawdown. For example, "D" factors used for Snake River spring/summer (D=0.65) and fall (D=0.05) chinook stocks assumed that non-transported juveniles arriving below Bonneville Dam survived 54% and 1,900% better, respectively, than transported fish.

Given the extremely conservative approach that the Corps employed to estimate maximum potential benefits from drawdown, it was necessary to accurately portray the existing controversy over the use of the assumptions selected by the Corps. Rather, it is intended to provide balance to the overall discussion presented.

Because of the limited scope of the Phase I reconnaissance-level study, not all species that would be impacted by John Day drawdown could be addressed. In that regard, the Phase I report describes the results of a reconnaissance-level study that is not intended to be comprehensive. Potential effects on other species is not information necessary to meet the goals of the Phase I.

Section 7.17.1.6 Total Project Juvenile Salmonid Survival (In-River Survival), page 97. This section (or section 7.17.3 Probability of Improved Juvenile Survival with Drawdown Alternatives, page 100) should point out that juvenile mortalities and injuries associated with turbines and gas supersaturation at the existing John Day Dam would be eliminated with the natural river drawdown alternative.

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14 This section also indicates that barge transportation of juvenile salmonids would cease under the drawdown alternatives because deep draft barges would no longer be able to navigate. It may be possible to use smaller, shallower draft barges to transport juvenile fish from the Snake River dams. Migrating salmon smolts can be held for up to two days until enough fish have been collected to load a barge. Use of smaller barges may also benefit juvenile salmonids by reducing the time they are held before being transported. Use of smaller barges or other means of transportation should be discussed as an alternative procedure.

The Independent Scientific Advisory Board (ISAB) addressed several questions raised by the regional Implementation Team regarding transportation of juvenile salmonids. The ISAB indicated several concerns. These included: 1) that collection and transportation may favor some populations, life history types, and species while decreasing the survival of others; and 2) that there may be differences in the straying of fish that are transported compared to those that migrate in the river. The concerns and conclusions of the ISAB regarding transportation should be discussed in this section.

Section 7.17.4 Potential Effects on Spawning Adult Salmonids, page 103. It should be stated that, except for rare high flow events, migration delays that now occur at John Day Dam would be eliminated with the natural river drawdown. However, this benefit may be offset by adult migration through the natural river system that could be slower than with the existing reservoir (because of water velocities).

The second paragraph should be corrected to indicate that elimination of John Day Dam would eliminate some fallback of adult salmon. There are studies that indicate some natural fallback can occur in areas where dams are not present.

Section 7.17.5 Potential Harvest Benefits, page 105. This section again downplays the benefits of drawdown alternatives by indicating that hatchery production of smolts is twice as high as natural production. This represents only a positive aspect of hatchery production. It fails to

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14. Barge navigation through the 76-mile John Day reach under drawdown to natural river conditions would be difficult and dangerous during the spring even with the use of relatively small craft because of the currents that would be encountered. During summer and fall, low flow levels would also result in difficult and dangerous operating conditions. Development of reliable transportation by barge under these conditions is not practical. However, the Corps has edited the Phase I report to indicate that transportation of Snake River fall chinook salmon, which occurs primarily by truck between late June and October, could continue under John Day drawdown conditions to the extent that collection of juveniles in the Snake River continued.

A modern barge-tow configuration for the Columbia-Snake River navigation system presently consists of one tow and four 3,500-ton barges. This barge tow configuration can safely transit John Day Lock and Dam and the full 76-5-mile length of John Day Reservoir throughout the year. In addition, this barge tow configuration can also operate for a full range of flow conditions on the Columbia River, from 80,000 cubic feet per second (cfs) to 800,000 cfs.

For drawdown to Natural River level, the estimated tow configuration (based on pre-reservoir traffic) would probably consist of one tow and one 1,000-ton barge. For this greatly reduced barge tow configuration, safety issues would still preclude operation of barge transportation for a number of reasons. This includes poor visibility conditions such as at night or fog that would preclude safe barge transportation. In addition, the tow configuration could not operate safely during low flow conditions (from August through October) for this natural river reach due to minimum depth requirements for safe barge operation. Furthermore, the tow configuration could not operate safely during high flow conditions where the tow could easily lose control of the barge while in downstream transit. These high flow conditions could typically extend from May through July during the spring-summer freshet on the Columbia River. Despite the many precautions taken by the experienced barge operators on this reach prior to April 1968, however, numerous accidents occurred that resulted in both loss of barge equipment and human life. Since the barge carried only grain at this time, and not refined oil products or nuclear wastes, the resultant environmental damage to the river ecosystem was minimal.

Section 7.17.1.6 Total Project Juvenile Salmonid Survival (In-River Survival), page 97. This section (or section 7.17.3 Probability of Improved Juvenile Survival with Drawdown Alternatives, page 100) should point out that juvenile mortalities and injuries associated with turbines and gas supersaturation at the existing John Day Dam would be eliminated with the natural river drawdown alternative.

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This section also indicates that barge transportation of juvenile salmonids would cease under the drawdown alternatives because deep draft barges would no longer be able to navigate. It may be possible to use smaller, shallower draft barges to transport juvenile fish from the Snake River dams. Migrating salmon smolts can be held for up to two days until enough fish have been collected to load a barge. Use of smaller barges may also benefit juvenile salmonids by reducing the time they are held before being transported. Use of smaller barges or other means of transportation should be discussed as an alternative procedure.

15 The Independent Scientific Advisory Board (ISAB) addressed several questions raised by the regional Implementation Team regarding transportation of juvenile salmonids. The ISAB indicated several concerns. These included: 1) that collection and transportation may favor some populations, life history types, and species while decreasing the survival of others; and 2) that there may be differences in the straying of fish that are transported compared to those that migrate in the river. The concerns and conclusions of the ISAB regarding transportation should be discussed in this section.

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15. A statement was added to the barge transportation discussion indicating that effects of juvenile fish transportation on straying rates of adult returns and on the potential for selection of certain life history types or species over others have been raised as concerns. We state that associated impacts on survival may contribute to differential mortality between transported and non-transported juvenile migrants.

16. The Phase I report was edited to indicate that spawner delay, as well as fallback, at John Day Dam would be eliminated under drawdown to the natural river channel. We also added the comment that the benefit of eliminated spawner delay at John Day Dam may be offset by an increase in the average upstream migration time because of increased flow velocities.

17. We indicated that unintentional fallback of adults at John Day Dam would be reduced under drawdown to the natural river channel.

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The Independent Scientific Advisory Board (ISAB) addressed several questions raised by the regional Implementation Team regarding transportation of juvenile salmonids. The ISAB indicated several concerns. These included: 1) that collection and transportation may favor some populations, life history types, and species while decreasing the survival of others; and 2) that there may be differences in the straying of fish that are transported compared to those that migrate in the river. The concerns and conclusions of the ISAB regarding transportation should be discussed in this section.

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18. The Corps assessment of the potential increase in natural production of fall chinook that may occur below McNary Dam as a result of John Day drawdown to the natural river level is extremely liberal. It is based on the assumptions that all of the potential spawning habitat in the John Day reach will be restored to a usable condition, that all of this habitat will be seeded with redds (at an appropriate redd density), and that the availability of spawning habitat (rather than rearing habitat or ocean survival conditions) is limiting the current level of natural production of Upriver Bright fall chinook in the Columbia Basin. In spite of these liberal assumptions, our analysis indicated that the resulting surplus production of harvestable fish under good to excellent ocean survival conditions would be less than the harvestable surplus that would be produced under the existing hatchery mitigation program established to mitigate for the lost natural production from the inundated John Day reach.

The common survival rates used for hydro system effects on both hatchery and natural juvenile migrants were based on data collected at mainstem Columbia River dams on run-of-the-river fish that included both fall chinook of hatchery and natural origin. Likewise, Dr. Chapman's assessment of ocean survival effects, as cited in the Phase I report, is applicable to mixed stocks of ocean migrants that are of both hatchery and natural origin. While most of this data is from marked groups of hatchery fish, it is the best data currently available and has been used by many other investigators in the Northwest Region in a manner similar to that employed in the Corps' Phase I report.

The Corps' draft analysis did overlook the fact that naturally produced smolts are likely to have a higher smolt-to-adult survival rate (SAR) than hatchery fish, and we have adjusted the analysis and results presented in the final Phase I report accordingly. For this adjustment, we used a value reported by Chapman et al. (1994) that estimated the SAR for naturally produced fall chinook from the Hanford Reach exceeded by approximately 1.56 times the SAR for URB hatchery fish.

The Corps feels that its use of survival rates for this analysis is consistent with the very rough assessment of nature fall chinook spawning potential estimated for the John Day reach under drawdown conditions. If authorized by Congress, a more thorough and exacting analysis would be conducted under a Phase II study.

Section 7.17.1.6 Total Project Juvenile Salmonid Survival (In-River Survival), page 97. This section (or section 7.17.3 Probability of Improved Juvenile Survival with Drawdown Alternatives, page 100) should point out that juvenile mortalities and injuries associated with turbines and gas supersaturation at the existing John Day Dam would be eliminated with the natural river drawdown alternative.

Section 7.17.1.7 Barge Transportation, page 98. This section presents a partial discussion of transportation and highlights the positive aspects of barging, potential negative results of drawdown, and uncertainties of delayed mortality. It also only describes the effect of transportation on chinook salmon. Other species such as sockeye salmon and Pacific lamprey are not addressed. The discussion also fails to describe the uncertainty regarding the adult returns of spring/summer chinook and steelhead to the Snake River system that are barged compared to those that migrate in the river. Ongoing studies indicate that in different years the percentages of returning adult salmon and steelhead that were transported may or may not be higher than those that were not transported.

This section also indicates that barge transportation of juvenile salmonids would cease under the drawdown alternatives because deep draft barges would no longer be able to navigate. It may be possible to use smaller, shallower draft barges to transport juvenile fish from the Snake River dams. Migrating salmon smolts can be held for up to two days until enough fish have been collected to load a barge. Use of smaller barges may also benefit juvenile salmonids by reducing the time they are held before being transported. Use of smaller barges or other means of transportation should be discussed as an alternative procedure.

The Independent Scientific Advisory Board (ISAB) addressed several questions raised by the regional Implementation Team regarding transportation of juvenile salmonids. The ISAB indicated several concerns. These included: 1) that collection and transportation may favor some populations, life history types, and species while decreasing the survival of others; and 2) that there may be differences in the straying of fish that are transported compared to those that migrate in the river. The concerns and conclusions of the ISAB regarding transportation should be discussed in this section.

Section 7.17.4 Potential Effects on Spawning Adult Salmonids, page 103. It should be stated that, except for rare high flow events, migration delays that now occur at John Day Dam would be eliminated with the natural river drawdown. However, this benefit may be offset by adult migration through the natural river system that could be slower than with the existing reservoir (because of water velocities).

The second paragraph should be corrected to indicate that elimination of John Day Dam would eliminate some fallback of adult salmon. There are studies that indicate some natural fallback can occur in areas where dams are not present.

18 cont.

Section 7.17.5 Potential Harvest Benefits, page 105. This section again downplays the benefits of drawdown alternatives by indicating that hatchery production of smolts is twice as high as natural production. This represents only a positive aspect of hatchery production. It fails to

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18. (continued)

This presentation of information is not intended to "downplay" or to promote any particular management philosophy. Those who feel that natural production, at any level, is superior to hatchery production will view the results we present differently from those who feel that maximization of potential harvest benefits is more important than other considerations. The Corps' intent is simply to present the relevant scientific facts, together with their uncertainties, in a balanced way to the best of our ability given the information, time, and financial resources available to us.

There would be no reason for the Corps to continue to finance production of hatchery fall chinook in mitigation for lost natural production that it has successfully restored. Although other entities may elect to assume this financial responsibility, the associated use of funds represents a loss to the Region in terms of the availability of those funds for alternative mitigation or other use, including the production of additional hatchery fish. We, therefore, conclude that recognition of the Corps' likely termination of funding for this mitigation hatchery program under the circumstances of natural production restoration constitutes a real cost to the Region that should be recognized and reported as a potential circumstance associated with the related natural production benefits.

The heading under 7.17.5 has been edited to read, "Potential Change in Harvest Benefits…"

account for higher smolt to adult survival of naturally produced fish compared to hatchery fish. It then states that as natural reproduction of fall chinook salmon in (the former) John Day Reservoir is restored, mitigation hatchery programs would presumably be phased out and harvestable numbers of fall chinook would decrease. That presumption may or may not be accurate. Even if the existing funding structure for the hatcheries should change, agency goals and objectives for Columbia River anadromous fish production levels and funding opportunities could possibly provide for continued operation of the hatcheries. We suggest the statement be modified to reflect this option and indicate that mitigation hatchery programs might be affected. If they were in fact affected, the potential reduction in harvest would be a loss, not a "Harvest Benefit" as indicated in the title of this section.

19 Another harvest impact that should be identified is the production loss resulting from the closure of the Irrigon and Umatilla Fish Hatcheries. All of the proposed drawdown scenarios would leave the hatcheries with an insufficient amount of water to continue operation. This would result in an annual production loss of about 5 million salmon and steelhead smolts. These losses may be reduced if a satisfactory alternative water supply could be developed. It should be noted that finding hatchery water supplies is difficult because of water quality and temperature requirements.

20 The last paragraph states that "The potential improvements to spawning habitat would not benefit the local stock of fall chinook salmon that is not at risk of extinction". However, in the preceding paragraph it states that "drawdown to natural river level could provide an approximate 8- to 10-fold increase in fall chinook spawning capacity...in the John Day reach". This would be an increase of 55,000 naturally spawning fall chinook in the John Day Reservoir which **would** be a benefit to the local stock of fall chinook. This section should be corrected to identify this benefit. The last part of this paragraph indicates that Snake River fall chinook stock, listed as threatened, and "other" species that were evaluated would "be potentially subject to modifications in the amount of reservoir rearing habitat, to improvements in reservoir travel time, to alterations in predator interactions, and to alterations made to access local tributary streams". It is not clear what the potential impacts may be base on this sentence. Instead of saying "modifications" in the amount of reservoir rearing habitat, it should indicate whether there would be more or less. Instead of "alterations" in predator interactions, it should say "reduced predation". Instead of "alterations" made to access tributary streams, it should indicate possible difficulty accessing tributary streams.

21 Section 7.17.6 Potential Impacts on Resident Fish and Habitat, page 106. This part of the report should indicate that the dewatering of 8,836 acres of shallow water habitat is expected to result in spawning habitat losses for species such as the smallmouth bass, which travel many miles in the Columbia River to reach warmer sloughs and backwaters to spawn. This could result in lower populations of species dependent on the warmer backwaters.

22 The last paragraph should also mention that drawdown to natural river would allow movement of white sturgeon from The Dalles Dam to McNary Dam. Populations in the John Day and The Dalles reservoirs that are now separated by John Day Dam would be reconnected. Some potential

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19. For purposes of the Phase I reconnaissance-level study, it is assumed that the Irrigon and Umatilla Fish Hatchery facilities would be successfully relocated.

20. Corrections to the quoted sentence and edits to the subsequent paragraph have been made. It was clarified that John Day drawdown has the potential to increase spawning habitat for fall chinook salmon. Related issues listed at the end of the paragraph are discussed in detail in other sections of the report.

21. As the draft Phase I report indicates, the smallmouth bass population will likely redistribute in accordance with changes in, and distribution of, habitat types. However, little or no change in the overall abundance of this fish is anticipated.

22. A statement was added concerning restoration on connectivity between resident fish population segments located in the John Day and The Dalles pools under John Day drawdown to natural channel level.

movement from Bonneville Dam to McNary Dam may also occur because limited numbers of sturgeon are able to pass The Dalles Dam's fish ladder.

23 Stranding of resident fish species during the initial drawdown to either spillway crest or natural river should be identified as a potential adverse impact.

24 The potential impacts on both resident and anadromous fish from sediments and turbidity during initial construction activities, and from release of the accumulated bedload behind John Day Dam when it is breached, should be described in the Aquatic Resources Impacts section.

25 Section 7.17.7 Estimated Change in Predation-Related Mortality after Drawdown, page 107. Drawdown to spillway crest would not necessarily concentrate existing predator populations in the lower reservoir area. Northern pikeminnow and smallmouth bass in the Columbia River are typically found in shallower waters less than four meters deep. Lowering the water surface elevation would shift this four meter zone downward and would not increase the density of predators. Some increased predator densities may occur throughout the reservoir with a natural river drawdown and in the upper reservoir area at spillway crest. However, these higher densities would likely be short-term as predator populations reach equilibrium in their preferred habitat of slower moving water.

26 Section 7.18.1.3 Shallow Water Habitats, page 109. Significant wildlife habitat associated with numerous ponds in the Irrigon area would be lost as the ponds would be dried up from the proposed drawdowns. This impact should be described here.

27 Section 7.18.1.4 Islands, page 109. It should be noted here, and in Table 44, that not only would there be an increase in island acreage, but there would be from 77 to 84 new islands, depending on the alternative selected. These islands would provide significant wildlife habitat values to the project area.

28 Section 7.18.2.1 Endangered, Threatened, and Sensitive Species, page 110. It should be noted that a population of western painted turtles is present in the ponds near Irrigon and they are listed as a sensitive species by the State of Oregon.

Section 7.18.2.2 Waterfowl, Page 110. It is stated that "habitat suitable for roosting and loafing by wintering geese would be significantly reduced". Actually, use of the refuge by wintering geese would be essentially eliminated with a loss of over 2.5 million goose use-days. The last paragraph implies that puddle ducks would not be significantly impacted because their forage would be maintained in agricultural crops. While these crops do provide significant forage, much of their food is obtained in the marsh environment, which would be gone with the project. It should be noted that wintering duck use on the Umatilla Refuge would be essentially eliminated with any of the drawdown alternatives. This loss amounts to over 34.5 million duck use-days.

Section 7.18.2.8 Aquatic Furbearers, Page 113. Adverse impacts to mink and muskrat should be included along with beaver and river otter.

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23. See response number 9.

24. At the end of "7.17.1.3 Habitat Changes," under "7.17 Aquatic Resource Impacts" the reader is advised to see "7.5 Water Quality Impacts" for a discussion of turbidity, dissolved gas, temperature, and other related parameters.

25. The Corps agrees that predators would not likely be concentrated as a result of John Day drawdown and has edited the Phase I report accordingly.

26. Will revise paragraph to read as follows: "Existing shallow-water and backwater habitats … McCormack Slough, and Crow Butte. *The Irrigon Wildlife Management Area includes numerous ponds and shallow water habitats. The* existing submergent aquatic plant communities *at these locations* would *dry out and would* be lost. Additional loss…"

27. Will revise paragraph as follows: "The number and area … Table 44. Current*ly 137* islands *total an* area *of* 408 acres. *From 77 to 84 new islands would be revealed under the drawdown of John Day Reservoir.*"

In addition, Table 44 will be modified to include existing island number and area

Table 44. Estimated Change in Number and Area of Islands

	Number of Islands	Total Area (acres)	Increase Over Existing Conditions (acres)
Existing Conditions	137	408	---
Spillway Crest	214	5,361	4,953
Natural River	221	6,178	5,770

28. Will revise section heading to "Federal Endangered, Threatened, and Sensitive Species" to clarify that this section addresses just federal species. Will note the status of the western painted turtle, however, in section 4.19.2.11 Reptiles and Amphibians (page 48) by adding the following to the end of the second paragraph: "The western painted turtle is identified as a sensitive (critical) species by the ODFW. This statement will also be inserted after the first sentence in section 7.18.2.11 Reptiles and Amphibians (page 113).

movement from Bonneville Dam to McNary Dam may also occur because limited numbers of sturgeon are able to pass The Dalles Dam's fish ladder.

Stranding of resident fish species during the initial drawdown to either spillway crest or natural river should be identified as a potential adverse impact.

The potential impacts on both resident and anadromous fish from sediments and turbidity during initial construction activities, and from release of the accumulated bedload behind John Day Dam when it is breached, should be described in the Aquatic Resources Impacts section.

Section 7.17.7 Estimated Change in Predation-Related Mortality after Drawdown, page 107. Drawdown to spillway crest would not necessarily concentrate existing predator populations in the lower reservoir area. Northern pikeminnow and smallmouth bass in the Columbia River are typically found in shallower waters less than four meters deep. Lowering the water surface elevation would shift this four meter zone downward and would not increase the density of predators. Some increased predator densities may occur throughout the reservoir with a natural river drawdown and in the upper reservoir area at spillway crest. However, these higher densities would likely be short-term as predator populations reach equilibrium in their preferred habitat of slower moving water.

Section 7.18.1.3 Shallow Water Habitats, page 109. Significant wildlife habitat associated with numerous ponds in the Irrigon area would be lost as the ponds would be dried up from the proposed drawdowns. This impact should be described here.

Section 7.18.1.4 Islands, page 109. It should be noted here, and in Table 44, that not only would there be an increase in island acreage, but there would be from 77 to 84 new islands, depending on the alternative selected. These islands would provide significant wildlife habitat values to the project area.

Section 7.18.2.1 Endangered, Threatened, and Sensitive Species, page 110. It should be noted that a population of western painted turtles is present in the ponds near Irrigon and they are listed as a sensitive species by the State of Oregon.

29 Section 7.18.2.2 Waterfowl, Page 110. It is stated that "habitat suitable for roosting and loafing by wintering geese would be significantly reduced". Actually, use of the refuge by wintering geese would be essentially eliminated with a loss of over 2.5 million goose use-days. The last paragraph implies that puddle ducks would not be significantly impacted because their forage would be maintained in agricultural crops. While these crops do provide significant forage, much of their food is obtained in the marsh environment, which would be gone with the project. It should be noted that wintering duck use on the Umatilla Refuge would be essentially eliminated with any of the drawdown alternatives. This loss amounts to over 34.5 million duck use-days.

30 Section 7.18.2.8 Aquatic Furbearers, Page 113. Adverse impacts to mink and muskrat should be included along with beaver and river otter.

Corps of Engineers Response

29. This statement will be modified to read as follows: "While the proposed action… habitat suitable for roosting and loafing by wintering geese would be eliminated, with a loss of over 2.5 million goose use days."

Regarding puddle ducks, the last paragraph of the waterfowl section (page 111) will be modified to read as follows: "*Some* forage for wintering waterfowl would … area. Wintering duck populations, however, would incur a loss of foraging resources … Furthermore, winter duck populations would…"

30. Will modify the second paragraph of section 7.18.2.8 (page 113) to read as follows: "The existing river otter … decline. River otter, mink, and muskrat populations would incur substantial adverse impacts due to loss of denning and foraging habitats, and of prey. The decrease in backwater habitat … on the margins of the new river channel may support these species of aquatic furbearers in the long run, however, …"

31 Section 7.18.2.11 Reptiles and Amphibians, Page 113. It should be noted that the western painted turtle is listed as a sensitive species by the State of Oregon.

32 Section 7.18.3.10 Irrigon Wildlife Management Area, Page 116. It is not clear if the described "wetlands" include the numerous ponds in the management area. It should be stated that these ponds and their associated wildlife would be eliminated with the project.

33 Section 8.1 Mitigation Measures for Wildlife Resources, Page 119. A similar section to address mitigation measures for fish resources should also be included in the report. In addition to discussing mitigating the fish impacts described earlier in the report, a plan to replace the loss of 5 million salmon and steelhead smolts at the Irrigon and Umatilla Hatcheries should also be included.

34 The last paragraph indicates that providing water to maintain existing wetland and riparian habitats is not likely to be practical. While it may not be practical to maintain the existing wetlands, it is our recommendation that an evaluation be conducted to determine if water could be provided to <u>portions</u> of any of the backwaters, sloughs, or ponds to retain some of the fish and wildlife values.

<u>Comments on Biological/Environmental Technical Appendix-Aquatic Resources Section</u>

Section 7.3 Current Conditions, Page 46. The first paragraph gives the impression that fall chinook salmon spawning occurs in the reservoir habitat throughout the Columbia and Snake rivers. Some of the reports referred to in this section (Groves, 1993, and Garcia et al., 1993) describe deep water spawning in free flowing reaches of the Snake River. Spawning actually occurs in tailrace areas at the upstream ends of reservoirs where more riverine conditions exist. While some tailrace spawning does occur in the Snake River, only limited numbers of redds have been observed in recent years, mainly at Little Goose and Lower Granite dams. Dauble et al.(1999) reported 14 redds in the Lower Granite tailrace in 1993, 5 in 1994 and none in 1995, 1996, and 1997. At Little Goose Dam 4 redds were seen in 1993, 1994, and 1996 and one in 1997. It would be more correct to state that limited fall chinook spawning in the tailraces of the lower Snake River dams were found only near the juvenile bypass system outfalls. Spawning surveys are presently being conducted at areas downstream from Bonneville, The Dalles, John Day, and McNary dams by the Oregon Department of Fish and Wildlife and Washington Department of Fish and Wildlife.

Section 7.3.3 Estimated Benefits under Drawdown, page 52. The last paragraph indicates that it would take a large flood to scour the streambed to clear embedded fine materials so that salmon spawning would be successful. Another scenario would be that suitable spawning substrate would be formed when gravels and cobbles are transported or shifted by high water flows rather than scoured.

Thank you for the opportunity to comment on the draft report. For additional information and details concerning impacts to fish and wildlife from the project, please refer to the Fish and Wildlife Service Planning Aid Letter to you dated November 16, 1999.

Corps of Engineers Response

31. See response number 28.

32. Will clarify by modifying paragraph to read as follows: "Water levels in the wetlands and ponds (shallow-water habitats) at Irrigon … would dewater and eliminate all wetlands and ponds within the management area …"

33. The purpose for considering John Day drawdown alternatives is to identify and evaluate potential benefits for fisheries resources; particularly benefits that will aid in the recovery of ESA listed species. It is also to identify and evaluate potential associated impacts and costs.

Currently, mitigation in the form of fall chinook hatchery production is provided for lost natural production that resulted from inundation of the John Day reach. The Corps will continue to provide this existing mitigation, unless the lost natural production currently mitigated for is restored.

Benefits from development of John Day Dam and Reservoir included such natural resource components as creation of non-native sport fisheries and other recreational opportunities as a result of habitat changes associated with inundation. No credit, with respect to mitigation for impacts to other natural resources components, was afforded the Corps as a result of the development of these alternative benefits. Their loss as a result of John Day drawdown is considered to be part of the cost associated with the decision to pursue a drawdown alternative.

Potential impacts to specific facilities, such as the Irrigon and Umatilla fish hatcheries, could be mitigated through development of an alternative water supply as indicated near the bottom of Table 33 under 7.13 "Water Supply Impacts" in the Phase I report.

34. Will add the following at the end of section 8.1.1 On-site Opportunities: "Further evaluation, however, may identify localized areas within sloughs, backwaters, ponds, where short-term maintenance of wildlife habitats may be feasible."

Section 7.18.2.11 Reptiles and Amphibians, Page 113. It should be noted that the western painted turtle is listed as a sensitive species by the State of Oregon.

Section 7.18.3.10 Irrigon Wildlife Management Area, Page 116. It is not clear if the described "wetlands" include the numerous ponds in the management area. It should be stated that these ponds and their associated wildlife would be eliminated with the project.

Section 8.1 Mitigation Measures for Wildlife Resources, Page 119. A similar section to address mitigation measures for fish resources should also be included in the report. In addition to discussing mitigating the fish impacts described earlier in the report, a plan to replace the loss of 5 million salmon and steelhead smolts at the Irrigon and Umatilla Hatcheries should also be included.

The last paragraph indicates that providing water to maintain existing wetland and riparian habitats is not likely to be practical. While it may not be practical to maintain the existing wetlands, it is our recommendation that an evaluation be conducted to determine if water could be provided to <u>portions</u> of any of the backwaters, sloughs, or ponds to retain some of the fish and wildlife values.

<u>Comments on Biological/Environmental Technical Appendix-Aquatic Resources Section</u>

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36 Section 7.3.3 Estimated Benefits under Drawdown, page 52. The last paragraph indicates that it would take a large flood to scour the streambed to clear embedded fine materials so that salmon spawning would be successful. Another scenario would be that suitable spawning substrate would be formed when gravels and cobbles are transported or shifted by high water flows rather than scoured.

Thank you for the opportunity to comment on the draft report. For additional information and details concerning impacts to fish and wildlife from the project, please refer to the Fish and Wildlife Service Planning Aid Letter to you dated November 16, 1999.

Corps of Engineers Response

35. Edits in accordance with USFWS's suggestions were made to Section 7.3 "Current Conditions." It was indicated that deepwater spawning by fall chinook in mainstem Columbia and Snake River reservoirs is limited primarily to the tailrace area below dams.

36. The alternative habitat recovery scenario of burying embedded substrate areas under new gravel recruited during high flow events was added to the text. However, like the occurrence of adequate flushing flows, gravel recruitment from upstream sources may be limited because of the continuation of impoundments and of an altered hydrograph upstream of the John Day reach. In this regard, areas near tributaries to the John Day reach may have a higher potential for habitat recovery in the near term under drawdown conditions.

Sincerely,

for Kemper M. McMaster
State Supervisor

cc: Oregon Department of Fish and Wildlife, Portland
Bob Krein, Oregon Department of Fish and Wildlife
Greg Rimbach, Oregon Department of Fish and Wildlife
Kevin Blakely, Oregon Department of Fish and Wildlife
Paul Ashley, Washington Department of Fish and Wildlife
Gary Hagadorn, Howard Browers, Umatilla National Wildlife Refuge
Mike Tehan, National Marine Fisheries Service
Donald Sampson, Columbia River Inter-Tribal Fish Commission
Blaine Parker, Columbia River Inter-Tribal Fish Commission
Terry Luther, Confederated Tribes of the Warm Springs
Gary James, Confederated Tribes of the Umatilla Indian Reservation

References:

Dauble, D.D., R.P. Mueller, R.L. Johnson, W.V. Mavros, and C.S. Abernethy. 1999. Surveys of fall chinook salmon spawning downstream of lower Snake River hydroelectric projects. Summary report for 1993-1998. Prepared for U.S. Army Corps of Engineers, Walla Walla District. 27 p.

NMFS. 1998. 1997 Annual report to the Oregon Department of Environmental Quality, January, 1998. 161 p.

United States Department of the Interior

U. S. GEOLOGICAL SURVEY
Columbia River Research Laboratory
5501 A Cook-Underwood Rd.
Cook, WA 98605

March 30, 2000

U.S. Army Corps of Engineers, Portland District
Attention: John Day Drawdown Study
P.O. Box 2946
Portland, OR 97208-2946

Dear Sir or Madam:

I am providing comments on the "Draft Biological Study Summary Report, John Day Lock and Dam Phase I Drawdown Study" and "Summary – Salmon Recovery Through John Day Reservoir" from a number of scientists at the Columbia River Research Laboratory. Our comments are technical in nature and should not be interpreted as our taking a position for or against drawdown.

We commend the authors for the effort that went into the production of this report. We are providing the comments in this letter to help improve the technical accuracy of your report. Our comments are focused on topics where our work is referenced, or where we have substantial knowledge. As a research group, we are gratified to see that information that we produce was used to evaluate options for water management strategies.

Comments on "Draft Biological Study Summary Repost, John Day Lock and Dam Phase I Drawdown Study (the version we reviewed was downloaded February 16, 2000)

1 The report cites many references that were produced by our facility. Three references (Sheer 1999, USGS 1999, and Sheer et al. 1999) concern work on the John Day Reservoir. There are several references to Sheer (1999) and USGS (1999) in this report. Sheer (1999) was done using COE funding and USGS (1999) was funded by the USGS. The reference cited as Sheer et al. (1999) refers to a chapter from a draft report to the Bonneville Power Administration. The report was co-authored by Battelle's Pacific Northwest Division and the U.S. Geological Survey. This report should be cited in the text as "Battelle and U.S. Geological Survey (in review)" and not as "Sheer et al. (1999)". The correct citation for the References section would be:
Battelle and U.S. Geological Survey. in review. Chapter 3, Tests of two restoration strategies. In: Assessment of the Impacts of Development and Operation of the Columbia River

1. Edits have been made in an attempt to accommodate USGS's citation suggestions. The former Appendix D was dropped as an attachment to the Phase I report. The reference for USGS (1999) was changed as requested.

Hydroelectric System on Mainstem Riverine Processes and Salmon Habitats. Draft report to the Bonneville Power Administration. Portland, Oregon.

In the List of Appendices, the Corps report has included Battelle and U.S. Geological Survey (in review) as Appendix D. This draft report to the Bonneville Power Administration should not be used as an appendix to the Corp document. If the changes requested above are made, the report to the Bonneville Power Administration will be cited within the text. We ask that it be removed from the List of Appendices.

1 cont.

Section 4.3.3.14.3 relies heavily on "A Digital Atlas for John Day Reservoir"; a CROM produced by the US Geological Survey, Western Fisheries Research Center's Columbia River Research Laboratory. This work is variously cited in this section as USGS (1999), USGS, USGS data, DSS (USGS 1999) and USGS model. For consistency, the citation should be standardized. We suggest using USGS (1999) referenced as follows:
USGS 1999. A Digital Atlas of John Day Reservoir, Version 1.0. CDROM produced by the U.S. Geological Survey, Western Fisheries Research Center, Columbia River Research Laboratory, Cook, Washington.

2

In USGS (1999) our analyses estimated potentially suitable habitat for spawning by fall chinook. The analyses were restricted to only two variables as stated on page 62; water depth and water velocity. However, Section 4.3.3.14.3 consistently refers to these modeled results as *available habitat* (page 62, 2nd paragraph), *spawning habitat* (page 65, 1st paragraph), *spawning conditions* (page 66), *chinook salmon spawning* (page 67, 1st paragraph), and, in the worst misrepresentation, *USGS data* (page 68, 2nd paragraph). Referring to estimates of "potentially suitable habitat" in this manner could mislead the reader to be mislead concerning the precision and accuracy of the estimates. The Corps should make it very clear to the reader that the USGS modeling efforts produced only cursory estimates of potential habitat based on water depth and velocity. The USGS asks that the Corps change all reference to our atlas to USGS modeling results that describe potential habitat to reflect that these results are not measurements of actual habitat. In many instances, inserting the word "potential" or "potentially" in the appropriate place will improve the accuracy of the writing.

3

In Table 4.3.3.14-N (page 66), the USGS should not be cited in the caption for this table. Citing the USGS here wrongly implies that the USGS made estimates of potential seeding capacity in the John Day Reservoir. Also, Table 4.3.3.14-N is missing the superscript (1) on the column of Potential Spawning Habitat.

4

Figure 4.3.3.14-F (page 89) wrongly portrays the potential spawning habitat for white sturgeon for the Spill Crest and Natural River options. Areas that are potentially suitable are shown as non-suitable.

5

Figures 4.3.3.14-E and 4.3.3.14-F use data from USGS (1999). The Corps should provide a comment in the figure or the figure caption stating that the data used to create the figure were obtained from USGS (1999).

6

On page 30 in regard to current fall chinook salmon use of rearing habitat in the upper portion of John Day Reservoir, the report states "Substantial risk exists in modifying habitat of a healthy

2

Corps of Engineers Response

2. The text of concern has been revised as suggested.

3. Table 19 was edited as suggested.

4. Figure 7 was edited as suggested.

5. Figures 6 and 7 have been cited as suggested.

6. Additional text has been added to explain the basis for the Corps' conclusion.

Fish populations typically adapt, if possible, to environmental change. Substantial changes to habitat quality and availability in the Columbia River estuary have been documented. It is not unreasonable to suspect that certain life history components of the Upriver Bright fall chinook population that may have historically used rearing habitat in the Columbia River estuary currently rear in alternative habitat provided in the McNary and John Day pools (see Chapman et al. 1994).

We cite several reports documenting that this type of habitat is important to fall chinook produced in other areas of the Northwest. The presence of fall chinook rearing in the John Day pool has been documented, but little is known regarding the relative importance of this habitat to the productivity of the associated fall chinook population. Chapman et al. (1994) states in a footnote on page 89 that "…many subyearlings (that emerge at about 38-39 mm in April and May) leave the Hanford Reach, and in fact many fish cross McNary Dam, before early June. Mean size of subyearlings passing McNary Dam rapidly increases from about 45 mm in late May to 100 mm by mid- to late June (Wagner 1991; Koski et al. 1985)." This suggests that at least some of the naturally produced URB fall chinook from the Hanford Reach rear in the existing habitat in the upper John Day pool. In our Phase I report, we simply state that there is substantial risk in dramatically modifying or eliminating habitat that is currently being used by fall chinook rearing in the John Day pool without first obtaining a better understanding of its importance to the productivity of that population.

6 cont. stock." Because fall chinook evolved in a riverine habitat, not a reservoir habitat, an explanation of the "substantial risks" in restoring historic habitats is necessary to lend credibility to this statement.

7 We have concerns about how the authors present the predicted quality and quantity of juvenile fall chinook rearing habitat. In Table 4.3.3.14-C, there is no high-quality rearing habitat (probability of use >85%) under current operating conditions. An additional consideration is that the USGS rearing model was developed using data from the Hanford Reach. The riverine habitats found there support a more diverse macroinvertebrate community, used as food by juvenile fall Chinook, that is not currently found in John Day Reservoir as the report points out (page 76). Therefore, the rearing habitat currently available has less fish production potential compared to more riverine habitats that would be produced under drawdown conditions. On page 31, Par 2, line 1: "The total acres of high probability rearing habitat for subyearling chinook salmon was highest under the natural river alternative for all river flows modeled." We suggest adding: "Furthermore, within the high probability habitat area, none was characterized as having probabilities >0.85 under normal operating pool (Battelle and U.S. Geological Survey (in review)".

The Corps says on page 48 that because barges would not be able to navigate the river under drawdown conditions, thereby losing the survival benefits of transportation, there would be a 47% decrease in juvenile Snake River fall chinook salmon survival. This ignores the fact that all juvenile chinook salmon are transported by truck from lower Snake River projects beginning the last week of June. This means that of the subyearling chinook salmon passing Lower Granite Dam, 87% of the population was trucked in 1998, 83% in 1997, 88% in 1996, 95% in 1995, and 98% in 1994 (Data from DART). The 47% decrease in survival cannot be supported. The erroneous estimation of mortality under drawdown conditions via loss of barging also changes the estimation of the number returning Snake River fall chinook spawners. More adults should be produced under drawdown conditions.

The report claims that equilibrium spawning population in the Hanford Reach would decline in Table 4.3.3.14-L under drawdown conditions. The report does not give enough information on how estimates of decline were calculated to allow a thorough evaluation. This conclusion cannot be supported without further evidence.

On pages 69-71, the report discusses the potential harvest benefits of adults produced naturally in a drawn down John Day Reservoir versus those produced by mitigation hatcheries. The case is made that the hatcheries will produce more adults than will natural production. The whole argument assumes that all conditions are equal and that the performance and survival of hatchery and wild fish are equal as well. No evidence is given to support this assumption and therefore the conclusions are suspect. If hatchery fish performance and survival equaled that of wild fish, then there would be far more adult salmon produced in a basin that releases about 200 million hatchery smolts each year. It is interesting that data on the actual return of hatchery adults, for example from the last ten years, is not given, but rather the theoretical number expected to return.

Comments on Summary – Salmon Recovery Through John Day Reservoir

In "Summary – Salmon Recovery Through John Day Reservoir" the Corps (p. 19) seriously

Corps of Engineers Response

7. The model developed by USGS for assessing changes in the relative abundance of potential fall chinook rearing habitat under the various drawdown scenarios, while based on the best information available at the time, was limited in its capability and applicability in several respects. It considered certain parameters important for discerning rearing habitat quality (i.e., water depth, water velocity, and distance from shore) based on the riverine conditions examined in the Hanford Reach, but was unable to consider other important parameters (e.g., substrate type, presence and type of vegetation and structure) because this information was generally unavailable. In addition, the model was not based on data derived from assessments of rearing habitat used by fall chinook in non-riverine areas, such as in estuaries or in impounded areas where fall chinook are known to occur, and is therefore limited to some extent in its applicability to assessment of habitat quality within those types of habitats.

For potential rearing habitat modeling purposes, we agree with the choice of USGS to define "high probability" fall chinook rearing habitat as being those habitat "cells" (10 m^2 areas) possessing measured parameters where 10 or more fall chinook juveniles were observed to occur 70% or more of the time in the Hanford Reach. This definition provides for a reasonable margin of error in the probability of fall chinook occurrence in comparison to use of, say, a 50% occurrence criterion. However, we believe that the distinction between "high-quality" rearing habitat (probability of use > 85%) and "high probability" rearing habitat (probability of use > >70%) made by the USGS is arbitrary and probably beyond the model's true ability to distinguish meaningfully among alternative habitat qualities, given the relatively few parameters used in the model to distinguish habitat quality and given potential concerns regarding the model's applicability to non-riverine environments.

We have edited Table 3 and added associated text in the Phase I report to better address what we feel are some of the limitations associated with use of the USGS model for estimating potential changes in fall chinook rearing habitat under the various John Day drawdown scenarios.

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We have concerns about how the authors present the predicted quality and quantity of juvenile fall chinook rearing habitat. In Table 4.3.3.14-C, there is no high-quality rearing habitat (probability of use >85%) under current operating conditions. An additional consideration is that the USGS rearing model was developed using data from the Hanford Reach. The riverine habitats found there support a more diverse macroinvertebrate community, used as food by juvenile fall Chinook, that is not currently found in John Day Reservoir as the report points out (page 76). Therefore, the rearing habitat currently available has less fish production potential compared to more riverine habitats that would be produced under drawdown conditions. On page 31, Par 2, line 1: "The total acres of high probability rearing habitat for subyearling chinook salmon was highest under the natural river alternative for all river flows modeled." We suggest adding: "Furthermore, within the high probability habitat area, none was characterized as having probabilities >0.85 under normal operating pool (Battelle and U.S. Geological Survey (in review)".

8

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On pages 69-71, the report discusses the potential harvest benefits of adults produced naturally in a drawn down John Day Reservoir versus those produced by mitigation hatcheries. The case is made that the hatcheries will produce more adults than will natural production. The whole argument assumes that all conditions are equal and that the performance and survival of hatchery and wild fish are equal as well. No evidence is given to support this assumption and therefore the conclusions are suspect. If hatchery fish performance and survival equaled that of wild fish, then there would be far more adult salmon produced in a basin that releases about 200 million hatchery smolts each year. It is interesting that data on the actual return of hatchery adults, for example from the last ten years, is not given, but rather the theoretical number expected to return.

Comments on Summary – Salmon Recovery Through John Day Reservoir

In "Summary – Salmon Recovery Through John Day Reservoir" the Corps (p. 19) seriously

Corps of Engineers Response

8. We know little about either the quality of the riverine habitat that may result in the John Day reach following drawdown or the length of time that would be needed for hydraulic conditions to produce habitat with a macroinvertebrate diversity and production potential equal to or greater than that of the current reservoir habitat. As indicated in the Phase I report, extensive deposits of silt have accumulated in the John Day pool. Hydraulic conditions occurring following drawdown may not be able to adequately clean fine sediments from compacted substrates or to transport adequate quantities of clean gravel from upstream sources for many years, given that the flow dynamics of the river system upstream of the John Day reach will remain impounded and altered indefinitely.

In light of this uncertainty, the Corps reserves judgement on the quality of rearing habitat that may result following drawdown. We simply state in the Phase I report that, according to the modeling results produced by USGS, there may be about the same or slightly more rearing habitat under conditions of drawdown to natural river level as presently occurs under existing conditions.

9. The change in survival for fall chinook salmon presented in Table 12 of the draft Phase I report was based on the assumption that transportation would become less effective or would cease following drawdown. This is true for spring/summer chinook salmon that are transported primarily during the spring by barge. However, for fall chinook salmon that are mostly trucked in relatively small numbers per load from late June through October, transportation of these fish could be continued after John Day drawdown if the lower Snake River dams were not breached. Accordingly, edits have been made to text in the Phase I report and to the likely change in survival of Snake River fall chinook reported in Table 12.

10. The Phase I report summarizes the results obtained from deterministic life-cycle modeling analysis performed by Dr. James Anderson at the University of Washington. While the Corps feels that it is unnecessary to reiterate the lengthy details of this analysis in the Phase I report, Dr. Anderson's work is cited and his report regarding the analysis was appended to the draft Phase I report as Attachment F. In addition, the model used, and an explanation of its structure and use, is provided at the University of Washington web site on the Internet.

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Comments on Summary – Salmon Recovery Through John Day Reservoir

In "Summary – Salmon Recovery Through John Day Reservoir" the Corps (p. 19) seriously

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11. Very little useful information is available regarding either the current level of natural fall chinook production in the John Day pool or the potential natural production that may result under drawdown conditions. The Corps assumed that our maximum estimate of potential spawning habitat under drawdown conditions would develop into useful habitat and that it would be fully seeded with spawners. We assumed further that spawning habitat was limiting to fall chinook production and that available rearing habitat was not. All of these assumptions result in a very liberal estimate of the potential natural production of fall chinook that could be realized from drawdown of the John Day Reservoir.

The number of smolts produced per spawner (i.e., 100 smolts/spawner) for naturally reproducing fall chinook in the John Day reach was based on fall chinook fecundity and egg-to-smolt survival rates for wild fall chinook based on studies by Chapman et al. (1994), as cited in the Phase I report. Hatchery smolt production, on the other hand, was based on actual production goals and fall chinook releases associated with mitigation for lost natural production in the John Day reach under current conditions. The additional production benefit in terms of harvestable fish that results from the hatchery mitigation program over a natural production strategy is not surprising, and reflects primarily the survival advantage during the early life history stage afforded to fish reared in the protected hatchery environment.

The common survival rates used for hydro system effects on both hatchery and natural juvenile migrants were based on data collected at mainstem Columbia River dams on run-of-the-river fish that included both fall chinook of hatchery and natural origin. Likewise, Dr. Chapman's assessment of ocean survival effects, as cited in the Phase I report, is applicable to mixed stocks of ocean migrants that are of both hatchery and natural origin. While most of this data is from marked groups of hatchery fish, it is the best data currently available and has been used by many other investigators in the Northwest Region in a manner similar to that employed in the Corps' Phase I report.

The Corps' draft analysis did overlook the fact that naturally produced smolts are likely to have a higher smolt-to-adult survival rate (SAR) than hatchery fish, and we have adjusted the analysis and results presented in the final Phase I report accordingly. For this adjustment, we used a value reported by Chapman et al. (1994) that estimated the SAR for naturally produced fall chinook from the Hanford Reach exceeded by approximately 1.56 times the SAR for URB hatchery fish.

stock." Because fall chinook evolved in a riverine habitat, not a reservoir habitat, an explanation of the "substantial risks" in restoring historic habitats is necessary to lend credibility to this statement.

We have concerns about how the authors present the predicted quality and quantity of juvenile fall chinook rearing habitat. In Table 4.3.3.14-C, there is no high-quality rearing habitat (probability of use >85%) under current operating conditions. An additional consideration is that the USGS rearing model was developed using data from the Hanford Reach. The riverine habitats found there support a more diverse macroinvertebrate community, used as food by juvenile fall Chinook, that is not currently found in John Day Reservoir as the report points out (page 76). Therefore, the rearing habitat currently available has less fish production potential compared to more riverine habitats that would be produced under drawdown conditions. On page 31, Par 2, line 1: "The total acres of high probability rearing habitat for subyearling chinook salmon was highest under the natural river alternative for all river flows modeled." We suggest adding: "Furthermore, within the high probability habitat area, none was characterized as having probabilities >0.85 under normal operating pool (Battelle and U.S. Geological Survey (in review)".

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The report claims that equilibrium spawning population in the Hanford Reach would decline in Table 4.3.3.14-L under drawdown conditions. The report does not give enough information on how estimates of decline were calculated to allow a thorough evaluation. This conclusion cannot be supported without further evidence.

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Comments on Summary – Salmon Recovery Through John Day Reservoir

12 In "Summary – Salmon Recovery Through John Day Reservoir" the Corps (p. 19) seriously

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11. (continued)
The corps feels that its use of these survival rates for this analysis is consistent with the very rough assessment of nature fall chinook spawning potential estimated for the John Day reach under drawdown conditions. If authorized by Congress, a more thorough and exacting analysis would be conducted under a Phase II study.

12. We verified that related information presented in the Phase I report was accurately stated. Information concerning potential benefits from increased natural production of fall chinook in the John Day reach under drawdown conditions is presented in term of the potential change in quantity of spawning habitat, along with the assumptions that this habitat would eventually become usable, that it would become fully seeded, and that the availability of spawning habitat was limiting to the production of fall chinook salmon in the mainstem Columbia River.

misrepresents its own findings by stating that there are currently 5,500 chinook salmon spawning in the John Day Reservoir. On page 64 of the Draft Report (Estimated Fish Abundance, 2nd paragraph) the report states, "The reader is advised not to assume the numbers are absolute. Use of these numbers outside the expressly intended purpose stated herein is inappropriate." There is no empirical evidence to support any estimate of the numbers of spawning fall chinook in the John Day Reservoir.

12 cont.

We disagree with the statement (p. 20) about "*concentrating*" predators during a drawdown. Northern pikeminnow and smallmouth bass almost always occur in less than 4 m of water (Martinelli and Shively 1996; Petersen et al. 2000). Lowering a reservoir level simply moves this band of occupancy downward, and doesn't effectively increase the likelihood that the rate of predator-prey encounters will increase. This idea that predators will be "concentrated" and predation loss will increase is unfounded, and is largely a modeling artifact dependent on the spatial scale of the current passage models.

13

The approach of evaluating drawdown independently and examining its effects on "*probability of survival and recovery*" (p. 21) disregards the magnitude of benefits in relation to other actions that are ongoing. Cost/benefit analyses on other management alternatives are not routinely done (e.g. such as extended length screens). One operational change is not likely to result in rehabilitation of the fishery, however, the right combination of several actions might add up to significant improvements. By adding small amounts of high quality habitats (spawning and rearing) to an economically justified mix of operational changes in water and fish management, rehabilitation of certain species and stocks of fish would be substantially more probable.

14

Page 21-22; "Drawdown to natural river level would eliminate approximately 1,400 acres of rearing habitat currently used by fall chinook and could substantially affect their productivity…may offer approximately the same or slightly more potential rearing habitat for fall Chinook". The reference to 1,400 acres being "eliminated" under natural river levels is not accompanied by the fact that about the same amount of habitat would be restored under the natural river scenario. The sentence does not adequately summarize the text or Table 4.3.3.14-C Page 31 of the technical report. (See comment above on page 31 of technical report). The summary report fails to mention that at the same flow (300 kcfs) about the same amount, 1,434 acres of predicted habitat would be restored under natural river conditions. Furthermore, the reference to 1,400 acres being eliminated is not accompanied by the fact that none (0 of 1,399 acres) of those acres has a probability of use greater than 85%. In contrast, about a third of rearing habitats (419 of 1,434 acres) under the natural river scenario have a probability of use greater than 85%. This could be better summarized by stating that "Currently available habitat for rearing would be replaced in the natural river scenario with about the same acreage, and about one third of the habitat under the natural river scenario would have a higher probability of use, (i.e., higher quality habitat) than currently available under normal operating pool conditions". In this example, use of more accurate summary statements will lend greater credence to this summary document and any other summary documents prepared for presentation to the public.

15

What is the basis for the conclusion in the Recommendations (p. 26) that "*The population level of the healthy ... Hanford Reach ... fall chinook stock, however, would likely decrease*"? Earlier parts of the Summary say adult spawning will increase from 5,500 to 55,000 and that rearing habitat predictions are uncertain. So why would the Hanford stock decrease? This is unclear.

4

Corps of Engineers Response

13. The Corps agrees with this opinion and has edited the Phase I report accordingly.

14. Congress authorized and directed the Corps to perform a one-year reconnaissance-level study of the potential biological benefits and associated environmental impacts and costs that might result from John Day drawdown to spillway crest and to natural river level. The Phase I report meets this directive. The analytical approach used by the Corps was patterned after, and in keeping with, the Regionally developed PATH approach, as described in Dr. Anderson's paper appended to the Phase I report. This approach was designed, under the direction of the NMFS, to look at the probability of survival and recovery of listed fishes resulting from drawdown of mainstem dams on the Snake and Columbia rivers.

An analysis of the relative level of potential recovery benefits that might result from John Day drawdown in comparison to alternative recovery actions or strategies that are being, or that might be, pursued in the Columbia River Basin was outside of the authorized scope of the John Day Drawdown Phase I study. The Corps anticipates that alternative federal planning efforts relative to recovery of listed fishes in the Columbia River Basin (e.g., the "All H's planning effort) will address this issue. Information and analyses provided as a result of the Phase I study should be useful for planning purposes under these alternative efforts.

15. Discussions in the Phase I report of potential change in rearing habitat for fall chinook salmon under the various drawdown scenarios include both the potential loss of habitat currently in use and the potential restoration of that habitat under drawdown conditions.

misrepresents its own findings by stating that there are currently 5,500 chinook salmon spawning in the John Day Reservoir. On page 64 of the Draft Report (Estimated Fish Abundance, 2nd paragraph) the report states, "The reader is advised not to assume the numbers are absolute. Use of these numbers outside the expressly intended purpose stated herein is inappropriate." There is no empirical evidence to support any estimate of the numbers of spawning fall chinook in the John Day Reservoir.

We disagree with the statement (p. 20) about "*concentrating*" predators during a drawdown. Northern pikeminnow and smallmouth bass almost always occur in less than 4 m of water (Martinelli and Shively 1996; Petersen et al. 2000). Lowering a reservoir level simply moves this band of occupancy downward, and doesn't effectively increase the likelihood that the rate of predator-prey encounters will increase. This idea that predators will be "concentrated" and predation loss will increase is unfounded, and is largely a modeling artifact dependent on the spatial scale of the current passage models.

The approach of evaluating drawdown independently and examining its effects on "*probability of survival and recovery*" (p. 21) disregards the magnitude of benefits in relation to other actions that are ongoing. Cost/benefit analyses on other management alternatives are not routinely done (e.g. such as extended length screens). One operational change is not likely to result in rehabilitation of the fishery, however, the right combination of several actions might add up to significant improvements. By adding small amounts of high quality habitats (spawning and rearing) to an economically justified mix of operational changes in water and fish management, rehabilitation of certain species and stocks of fish would be substantially more probable.

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16 What is the basis for the conclusion in the Recommendations (p. 26) that "*The population level of the healthy … Hanford Reach … fall chinook stock, however, would likely decrease*"? Earlier parts of the Summary say adult spawning will increase from 5,500 to 55,000 and that rearing habitat predictions are uncertain. So why would the Hanford stock decrease? This is unclear.

4

Corps of Engineers Response

16. The Corps performed two separate analyses regarding potential benefits to Upriver Bright fall chinook salmon under the Phase I study. One analysis was consistent with the Regionally developed PATH modeling approach and examined potential changes to the existing fall chinook stock currently reproducing naturally in the Hanford Reach located above McNary Dam. The results of this analysis indicated that the productivity of fall chinook currently produced above McNary Dam in the Hanford Reach would likely decrease. This was primarily because of lower rates of survival for juvenile migrants that would occur with termination of barging.

A separate, and much less rigorous, analysis examined the maximum potential benefit that might result from an increase in natural fall chinook spawning below McNary Dam under drawdown conditions. No estimate of the number of spawners currently using habitat in the John Day pool exists, but we were able to estimate (based on hydraulic modeling of depth and water velocity criteria) the quantity of potential spawning habitat that currently exists and the quantities that might exist under drawdown conditions.

Potential benefits from drawdown were estimated in term of the change in quantity of potential spawning habitat under the assumptions that this habitat would eventually become fully usable, that it would also become fully seeded, and that the availability of spawning habitat (rather than rearing habitat) is limiting to the production of fall chinook salmon in the Columbia River Basin. Unfortunately, there are no data available currently to verify any of these assumptions. Accumulation of fine sediment within the reservoir and continued attenuation of peak flows following drawdown may result in long-term compaction of spawning gravel rendering it unusable. Alternatively, hydraulic mechanisms may be able to restore functional spawning habitat. Fisheries or other mortality factors may prevent population growth that will allow full seeding of restored habitat for many years, or high ocean survival rates may result in reaching full seeding levels fairly rapidly. Because of its relative abundance, there is a higher likelihood that the URB fall chinook population is affected by density-dependant mechanisms than other anadromous fish populations in the Columbia Basin. If so, the availability of rearing habitat is as likely as spawning habitat to be limiting URB fall chinook productivity.

Does it have to do with transportation?

These comments are provided for your consideration. If you would like more information or clarification, do not hesitate to contact me.

Sincerely,

James G. Seelye
Laboratory Director

5

16. (continued)

The benefits resulting from potential increase in natural production of URB fall chinook in the John Day reach were compared to the benefits that would be realized under the existing hatchery mitigation program, which was established to mitigate for lost natural production in the John Day reach. Clearly, the Corps would have no reason to continue funding this mitigation program if the natural production for which it mitigated was restored. The draft analysis and results were revised in the final Phase I report to recognize the potential difference in smolt-to-adult survival rates for naturally produced versus hatchery fall chinook based on data from natural and hatchery production in the Hanford Reach reported in Chapman et al. (1994), as cited in the Phase I report.

Because of the very different nature of the separate URB fall chinook analyses, the Corps chose not to attempt to integrate their results but, rather, to present their results separately in the draft Phase I report. However, several parties commenting on the draft Phase I report requested that the Corps attempt to integrate the separate analyses regarding potential production changes occurring above and below McNary Dam. As a result, the Corps has integrated these analyses in the final Phase I report and has presented a single result regarding likely overall impacts of John Day drawdown on production of URB fall chinook.

COLUMBIA RIVER INTER-TRIBAL FISH COMMISSION
729 N.E. Oregon, Suite 200, Portland, Oregon 97232
Telephone (503) 238-0667
Fax (503) 235-4228

May 1, 2000

Colonel Randall Butler
Portland District
Corps of Engineers
P.O. Box 2946
Portland, Oregon 97208

RE: Review of Corps John Day Drawdown Phase I Study

Dear Colonel Butler:

The Columbia River Inter-Tribal Fish Commission (CRITFC), at the direction of the Nez Perce Tribe, the Yakama Nation, the Confederated Tribes of the Umatilla Indian Reservation and the Confederated Tribes of the Warm Springs Reservation of Oregon has reviewed the Corps of Engineers' draft John Day Drawdown Phase I Study (draft study). We offer the following general and specific comments.

General Comments

1 The draft study did not include scoping comments and other input offered in public meetings from CRITFC and member tribes. Critical issues such as restoration of fluvial habitat, reduction in temperature and reduction of salmon passage losses were only given minimal consideration in the study. Although the Corps provided an informational briefing to the Commission on the issue, no formal consultation with the tribes was conducted. In the report, the Corps implies that drawdowns would be detrimental to tribal cultural values, properties and practices and that the tribes would need to be consulted on these issues. This has yet to occur.

2 The draft study fails to consider the John Day pool from an ecological perspective as noted by Reiger et al. 1989; Lichatowich and Mobrand 1995; Power et al. (1995), Williams et al. (1996) and Petts (1980). The principles that provide a fundamental conceptual framework necessary for restoration of salmon and other anadromous stocks, articulated by the ISAB (1999) in their review of the Corps Juvenile Fish Mitigation Program, are not addressed in the draft study. These principles include: 1) protect anadromous fish biodiversity by implementing passage solutions that benefit the range of species, stocks and life history types (ie: avoid selection) and 2) favor passage solutions that best fit natural behavior patterns and normative river processes.

1. The Phase I report considered all input received and the report was completed in accordance with the scoping document, as directed by the U.S. Congress. The Corps met with the Warm Springs, Umatilla, Nez Perce and Yakama Tribal Councils in addition to CRITFC. Before any decision were made to change the operation at John Day the Corps would meet with the tribes.

2. The John Day Drawdown Phase I study considered the available information regarding biological and environmental aspects relevant to potential effects of the action on the ecology of fisheries resources occurring in the project area. Effects on both anadromous and resident fish species were considered. Life-cycle modeling was used to assess potential effects of environmental changes on the various life history stages potentially impacted by drawdown. The Regionally developed PATH life-cycle modeling approach used by the Corps included all major aspects of salmonid life history likely to be affected by drawdown, along with the relationships of these life history stages to appropriate environmental parameters and variables.

To this letter, CRITFC has attached specific comments to the USFWS Planning Aid Report for the draft study (Attachment). CRITFC requests the Corps consider these comments as part of the overall comments to the draft study.

3 The draft study appeared very selective in examining the biological and economic benefits for spillway crest and natural river drawdowns. The draft study did not examine the potential to reduce upper river water demands in exchange for the decreased water particle travel time resulting from a drawdown alternative. Further, the recent draft Quantatative Analysis Report (NMFS 2000) suggests that the survival rates for upper Columbia juvenile salmon and steelhead, even with aggressive passage measures at the mid-Columbia dams, must be increased in the Lower Columbia River by at least 50-60% over existing survival rates if these stocks are to avoid extirpation. While CRITFC and member tribes asked for independent analyses of the biological and economic effects for the drawdown alternatives vs. the status quo operation, the Corps did not provide these for the draft study.

These fundamental omissions must be resolved. The Commission strongly recommends that the Corps proceed to endorse a John Day Phase II effort. In this effort, a full NEPA process would be implemented, which among other things, would require independent review and full consultation with the CRITFC tribes.

Specific Comments

4
- Passage mortalities would be reduced because summer water particle travel time, which is closely related to smolt travel time through the reservoir, would be reduced from 5.7 days at full pool to 2.5 days for spillway crest and 0.9 days for natural river level. Flows and velocity through the reservoir section would be higher and better mimic a natural riverine system. The draft report did not address anadromous fish production from a smolt-to-adult (SAR) return perspective. Rondorf et al. (1999) and Sheer et al. (1999) noted that natural rivers provide the necessary velocities and habitat essential for salmon and other anadromous fish production. They noted that early migrating and rearing salmon take advantage of higher river velocities and that these early migrants achieve a much higher SAR than later migrants.

5
- Careful examination of John Day Reservoir to spillway crest drawdown (50 feet from full pool) or natural river (110 from full pool) for salmon recovery was recommended in all three basin major restoration plans as key to restore critical habitat and reduce juvenile and adult salmon passage mortality. The plans included the NMFS 1995-1998 Hydrosystem Biological Opinion, the CRITFC treaty tribes' *Spirit of the Salmon*, and the NWPPC's 1994 *Strategy for Salmon*. The draft report did not include this perspective.

- Restoration of salmon habitat by drawing down John Day Reservoir to establish a normative river salmon reserve was a key point of the Independent Scientific Review Group in *Return to the River*. The draft study did not include this critical perspective.

Corps of Engineers Response

3. The scope of the Phase I study was developed with regional and tribal input to address those areas of concern that could clearly show a need to conduct more detailed studies.

4. The Corps used the Regionally developed PATH (i.e., Bayesian) life-cycle modeling approach and a deterministic life-cycle analysis to assess biological benefits likely to accrue from drawdown of the John Day Reservoir, including potential changes in spawners at equilibrium (i.e., non-harvested) population sizes and changes in total adult returns (i.e., spawning escapement plus harvestable surplus) at maximum sustainable yield population sizes (Tables 37 through 39 in the summary Phase I Study report). These analyses included consideration of smolt-to-adult (SAR) return rates. A range of potential benefits was reported as a consequence of the PATH modeling approach, depending upon the assumptions made regarding prospective model parameter values such as SARs. The Corps chose to report the high end of this range of potential benefits under the Phase I study so as to identify the maximum potential benefits that were scientifically defendable.

With regard to the Corps assessment of potential fall chinook production below McNary Dam that may develop under drawdown conditions, the Corps revised the analysis presented in the draft Phase I report to incorporate a SAR survival advantage for naturally produced smolts over hatchery mitigation smolts of 1.56 times based on Chapman et al. (1994). See revised Table 22.

5. None of the documents sited provides a study of the potential biological benefits or environmental impacts and costs associated with John Day drawdown alternatives, but merely hypothesizes that benefits of drawdown might be substantial. As a result, Congress directed the Corps to perform a study to determine likely benefits, environmental impacts, and costs associated with John Day drawdown alternatives. Phase I of the Corps' study is a one-year reconnaissance-level investigation from which Congress can determine whether additional study is warranted.

- CRITFC, the CTUIR, EPA and the state fishery agencies commented during scoping of the Phase I Study. Key points included that the study should focus on 1) biological benefits using PATH analyses, 2) field sampling work, 3) water quality benefits-specifically temperature, 4) benefits to flood control flexibility for spillway crest, 4) benefits to all anadromous fish species including lamprey and sturgeon, 5) use of prior drawdown analyses for the NWPPC, and 6) economic benefits including benefits to tribes. Consultation with the tribes was also recommended. The draft study did not address these comments. 6

- Juvenile passage could easily be accomplished using the existing spillway or a lower level sluiceway through the skeleton bays at a reasonable cost. Recent studies indicate that spill is very effective in passing downstream migrants (Ploskey et al. 1999). The draft study did not address this alternative. 7

- The draft study did not address water quality benefits including temperature benefits. A CRITFC analysis indicates that temperatures could be reduced by 3 degrees F, if spillway crest was implemented (Karr 1994 cited in attached PIA comments). 8

- The draft study failed to include prior drawdown studies that indicated a benefit for salmon and more reasonable and alternative engineering concepts. A 1994 NWPPC study stated that John Day drawdown could have as great a benefit for salmon if not greater than drawdown of the Snake River reservoirs.

- The draft study limited biological benefits for John Day drawdown to mainstem chinook salmon spawning. The creation of critical rearing habitat under the drawdown alternatives was not fully considered in the draft study (Sheer et al. 1999).

- Without consultation with the CRITFC tribes, the draft study implies that drawdowns would negatively impact tribal cultural values, properties and practices. The opposite case, that drawdowns would increase water quality, and fish and wildlife populations necessary for tribal culture is not addressed.

- There are no detailed costs for the individual features outlined in the Total Drawdown Implementation Cost Summary Table.

- Shoreline Costs. Please describe what these are. The rationale for these should be stated along with consideration of other alternatives such as vegetative stabilization.

- Irrigation. The draft study should have specified what options were considered. Could alternative sources of water be found, or conservation of water investigated? Was the option of purchasing water rights examined since it is an estimated $424,000,000 at a minimum to protect irrigation? How much of this irrigation was developed in the last decade?

- Municipal and Industrial Water supply. See comment 3.

Corps of Engineers Response

6. Items 1), 2), 3), and 4) are discussed in the Aquatic Resources Section of the Aquatic and Wildlife Resources Technical Appendix; 3) water quality benefits-specifically temperature are also discussed in the Water Quality Section of the Engineering Technical Appendix; 5) is responded to in response #5 above; 6) is discussed in the Economics Appendix, Commercial Fishing Section.

7. Juvenile fish passage with spill would be unnecessary under drawdown to natural river channel, as fish would be able to pass easily and safely through the breach in the dam. Under drawdown to spillway crest, many juvenile fish would pass with spill. Associated increases in survival were considered in modeling biological benefits, but there was no discussion of associated costs because there would be no cost beyond the associated spillway structural modifications that were discussed in the Phase I report. However, renovation of the juvenile bypass system at the powerhouse would still be necessary to protect juvenile migrants that did not pass with spill. These costs are also discussed in the Phase I report.

8. The Water Quality Section (under the Engineering and Technical Appendix, Volume 2) of the Phase I report indicates that the major effect of impoundment by John Day Dam on historic water temperatures in the John Day reach was to delay warming in the spring and cooling in the fall. Because of the relatively rapid exchange rate for the reservoir's volume, there is very little change (e.g., 3° to 5°C) in temperature with depth, even during summer. An analysis of PIT tag data by Skalski and Townsend (Attachment D to the Biological/Environmental Technical Appendix, Aquatic Resources Section of the Phase I report) for juvenile fish passing through the John Day reach showed no correlation between juvenile migrant survival probabilities and associated river operations or conditions, including water temperature, in 23 of 24 independent analyses during 1998. The Phase I report concludes that the effects of drawdown on water temperature are expected to be minimal and of little benefit to aquatic life. It points out that the possibility of higher annual peak temperatures may actually be detrimental.

- CRITFC, the CTUIR, EPA and the state fishery agencies commented during scoping of the Phase I Study. Key points included that the study should focus on 1) biological benefits using PATH analyses, 2) field sampling work, 3) water quality benefits-specifically temperature, 4) benefits to flood control flexibility for spillway crest, 4) benefits to all anadromous fish species including lamprey and sturgeon, 5) use of prior drawdown analyses for the NWPPC, and 6) economic benefits including benefits to tribes. Consultation with the tribes was also recommended. The draft study did not address these comments.

- Juvenile passage could easily be accomplished using the existing spillway or a lower level sluiceway through the skeleton bays at a reasonable cost. Recent studies indicate that spill is very effective in passing downstream migrants (Ploskey et al. 1999). The draft study did not address this alternative.

- The draft study did not address water quality benefits including temperature benefits. A CRITFC analysis indicates that temperatures could be reduced by 3 degrees F, if spillway crest was implemented (Karr 1994 cited in attached PIA comments).

9 - The draft study failed to include prior drawdown studies that indicated a benefit for salmon and more reasonable and alternative engineering concepts. A 1994 NWPPC study stated that John Day drawdown could have as great a benefit for salmon if not greater than drawdown of the Snake River reservoirs.

10 - The draft study limited biological benefits for John Day drawdown to mainstem chinook salmon spawning. The creation of critical rearing habitat under the drawdown alternatives was not fully considered in the draft study (Sheer et al. 1999).

11 - Without consultation with the CRITFC tribes, the draft study implies that drawdowns would negatively impact tribal cultural values, properties and practices. The opposite case, that drawdowns would increase water quality, and fish and wildlife populations necessary for tribal culture is not addressed.

- There are no detailed costs for the individual features outlined in the Total Drawdown Implementation Cost Summary Table.

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- Irrigation. The draft study should have specified what options were considered. Could alternative sources of water be found, or conservation of water investigated? Was the option of purchasing water rights examined since it is an estimated $424,000,000 at a minimum to protect irrigation? How much of this irrigation was developed in the last decade?

- Municipal and Industrial Water supply. See comment 3.

Corps of Engineers Response

9. See response number 5. Prior to initiation of the John Day Drawdown Phase I Study, the Corps funded an investigation of John Day drawdown to "minimum operating pool" (MOP), which was, essentially, the Phase I study "drawdown to spillway crest" alternative. Congress terminated this study before it was completed. The investigation of biological benefits conducted under the Corps' Phase I study built upon this prior Corps-funded study effort. Investigations that were initiated under the MOP investigation were completed under the Phase I study. The findings of these investigations were incorporated into the Phase I report. Also, see the response to paragraph 6 above.

10. Juvenile fish passage with spill would be unnecessary under drawdown to natural river channel, as fish would be able to pass easily and safely through the breach in the dam. Under drawdown to spillway crest, many juvenile fish would pass with spill. Associated increases in survival were considered in modeling biological benefits, but there was no discussion of associated costs because there would be no cost beyond the associated spillway structural modifications that were discussed in the Phase I report. However, renovation of the juvenile bypass system at the powerhouse would still be necessary to protect juvenile migrants that did not pass with spill. These costs are also discussed in the Phase I report.

11. The Corps of Engineers met with the Tribal Governing Councils of the Confederated Tribes of the Umatilla Indian Reservation, Confederated Tribes of the Warm Springs Reservation of Oregon, and The Confederated Tribes and Bands of the Yakama Nation in the spring and summer of 1996. Further, the Corps of engineers also met with the same governing Councils of the Nez Perce Natural Resource Committee, as well as the Columbia River Inter-Tribal Fish Commission (CRITFC) Board of Commissioners on the following dates : 16 March 1999 Nez Perce Natural Resource Department; 18 March 1999 CRITFC Commission Meeting; 4 May 1999 Yakama Nation Tribal Council; 12 May 1999 Umatilla Board of Trustees; 8 June 1999 Warm Springs Tribal Council.

In discussions with the Tribal Councils regarding their views on the positive and negative impacts of drawdown, some principles, values and perspectives arose which were reflected in the Draft John Day Drawdown study. These included various cultural values related to the River, its' resources and Native American practices and beliefs.

While it was the Corps understanding that these meetings Tribal Councils served as consultations and informational coordination actions in accordance with the Northwestern Division Tribal Policy, it does not necessarily preclude further consultation with the appropriate Tribes. We acknowledge that consultation with the appropriate Federally-recognized,

- CRITFC, the CTUIR, EPA and the state fishery agencies commented during scoping of the Phase I Study. Key points included that the study should focus on 1) biological benefits using PATH analyses, 2) field sampling work, 3) water quality benefits-specifically temperature, 4) benefits to flood control flexibility for spillway crest, 4) benefits to all anadromous fish species including lamprey and sturgeon, 5) use of prior drawdown analyses for the NWPPC, and 6) economic benefits including benefits to tribes. Consultation with the tribes was also recommended. The draft study did not address these comments.

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- The draft study limited biological benefits for John Day drawdown to mainstem chinook salmon spawning. The creation of critical rearing habitat under the drawdown alternatives was not fully considered in the draft study (Sheer et al. 1999).

11 cont. - Without consultation with the CRITFC tribes, the draft study implies that drawdowns would negatively impact tribal cultural values, properties and practices. The opposite case, that drawdowns would increase water quality, and fish and wildlife populations necessary for tribal culture is not addressed.

12 - There are no detailed costs for the individual features outlined in the Total Drawdown Implementation Cost Summary Table.

13 - Shoreline Costs. Please describe what these are. The rationale for these should be stated along with consideration of other alternatives such as vegetative stabilization.

14 - Irrigation. The draft study should have specified what options were considered. Could alternative sources of water be found, or conservation of water investigated? Was the option of purchasing water rights examined since it is an estimated $424,000,000 at a minimum to protect irrigation? How much of this irrigation was developed in the last decade?

15 - Municipal and Industrial Water supply. See comment 3.

Corps of Engineers Response

11. (continued)
Tribal Governments is a process and as such, is an integral aspect of the Corps trust responsibilities. Additionally, it is obviously important to the Tribes in their communiqué to the Corps that the concept of salmon as a resource, is as an integral part of their Culture.

Currently, a multi-agency process, the Federal Caucus is working to incorporate tribal values into their Basin-wide, All-H Paper, and other Federal documents. This is in response to the Columbia River Tribes request during previous consultation meetings with the Federal Executives. There are many meetings being scheduled for the time frame of September and October 2000 to discuss these issues, both at a technical and policy-government to government level.

12. The Cost Implementation Section of the Engineering Technical Appendix (moved from Economics Appendix due to comments by others) provides a summary and slightly detailed listing of costs items. However, the full detailed cost estimate is available by request for review by the public and tribes at the Portland District Corps of Engineers office.

13. Shoreline impacts pertain to numerous project features, including road and railroad embankments that parallel John Day reservoir. Other shoreline features impacted by reservoir drawdown include reservoir sedimentation (such as increased turbidity in the river), and tributary sedimentation. This pertains to Joh Day River, Willow Creek and Umatilla River in Oregon and Rock Creek in Washington. For these impacted tributaries, mitigation would be required for channel infill, and some erosion to stream bed and banks. Reservoir shoreline protection is discussed in the Phase I Study report in paragraphs 7.3 and 9.2.2 through 9.2.5. It is also discussed in the Slope Stability, Shoreline Erosion, and Sedimentation Section of the Engineering Technical Appendix, paragraphs 10.2.4, 11.2 and 11.4.

14. Options considered included modification of the existing pump stations and a canal on both sides of the river (providing water from the McNary pool – the alternate source of water). Purchasing water rights would likely have a cost close to the total value of these farms, assuming some harvest would occur without irrigation, which would be a larger cost than the estimated $424,000,000. A timeline of irrigation development was not relevant to the analysis, and thus was not considered.

15. Not sure which one is comment 3, but response number 14 above may answer your concerns.

- Erosion Seeding/Habitat Restoration. There may be a need for coordinated revegetation plans in areas to control non-native and noxious weeds. Vegetation can aid in reinforcing slopes to reduce slumping and slope failures that can contribute to increased sedimentation into the river. A healthy riparian zone is very beneficial for aquatic and terrestrial ecosystems. There are currently many groups and organizations that can perform this work at lower costs. The Salmoncorps is one such potential group. We request that this item be modified or removed from the list. Additional studies should be considered to determine other low cost options.

16

Engineering Appendix

In the limited discussion found in the Engineering Technical Appendix of the John Day Drawdown Phase 1 study, CRITFC has identified several points of concern. There were no costs for the individual items mentioned in each alternative's feature from the Table titled Total Drawdown Implementation Cost Summary on page 23 of the executive summary. If these cost are significantly high, the need for the modification needs reconsidered.

17

- For Alternatives 1 and 2, a new juvenile screened bypass system is proposed. CRITFC believes that this would be an unnecessary modification. The current screened bypass system has shown detrimental impacts including impingement and descaling for Pacific Lamprey and sockeye salmon respectively (CRITFC 1997). With a lower forebay elevation and thus reduced head to generate plunging flow which increase total dissolved gas levels, the spillway could pass nearly all the flow in the river throughout much of the year. Only during the peak of the hydrograph would the powerhouse need to be operated. Additional flow outlets could be added in the skeleton bay area. The region has already investigated the installation of one, two and up to four skeleton bays and estimated the cost at $75 million for two skeleton bays. This would be less than the proposed modifications to the juvenile screened bypass system and would create a more normative passage condition (ISAB 1999). With these two systems it should be possible to safely pass the majority of the river flow for the majority of the year.

18

- The draft study outlines navigation lock modifications but no costs are detailed. This information should be included. The study assumed that transportation would continue at present rates. Was an alternative to look at seasonal barging of deep draft barges investigated? Also was the possibility of shallow barges looked at? CRITFC believes that impacts to barging should be evaluated to include seasonal barging only.

19

- CRITFC agrees with the draft study report that the current hydro-turbines would could be used after drawdown to manage flow above what could be passed through the spillway.

- Alternatives 1 and 2 assume that the drawdown is a permanent operation to spillway crest. CRITFC believes that several of the modifications would not be needed if a season drawdown alternative were investigated.

20

Corps of Engineers Response

16. Riprap would be necessary to protect infrastructure along the river (i.e., approximately 32 percent of the 152 mile total length). Bioengineering may be appropriate for some areas, but such detail was not appropriate for the Phase 1 evaluation. A healthy riparian zone is indeed beneficial and extremely important for aquatic and terrestrial ecosystems, and it is acknowledged that revegetation would need to be coordinated. The cost of revegetation was based on the assumption that efforts would be made to stabilize the drawdown zone (i.e., those areas not riprapped) with native vegetation. Wetland and riparian vegetation would be established where such vegetation is likely to be supported (i.e., based on proximity to a new stream channel). It is highly likely, however, that undesirable, invasive, and /or weedy plants would become established and would preclude the success of native or desirable species in some areas. Weed control and other maintenance and vegetation management practices, along with any mitigation requirements, could be undertaken but would result in higher costs. Volunteer and other groups could be used to minimize these costs, however, regardless of the potential use of volunteers, the potential for such efforts over an area of 21,648 to 29,186 would be onerous and costly.

17. See response number 12.

18. The costs for providing a screened bypass have been included in the Phase I report. In general we have included all costs to replace what currently exists.

19. See response number 12.

20. Biological and environmental impacts associated with annual flooding and draining of the upper 50 feet of the John Day pool would likely be substantial, and far greater than those identified under Alternatives 1 and 2 of the Phase I study. The exact nature and extent of these impacts to fisheries resources would depend upon the timing and rates of flooding and draining. They could include de-watering or deep-water submergence of spawning and rearing areas; disruption of trophic (i.e., feeding), growth, and other behavioral dynamics within anadromous and resident fish populations; and interference with anadromous fish migrational behavior and survival.

21

a) The navigation lock would not need to be modified if drawdown was only seasonal. River traffic would still be possible though out the year but deep draft barges would only be usable during the time of year when the reservoir was at a higher elevation than spillway crest.

b) See comments 1 and 3 of the engineering appendix.

22

- No timelines or schedules were included for the engineering alternatives. In the Lower Snake River Feasibility DEIS, the Corps estimated that it would only take five years to breach two dams once the decision to breach was made. However, the draft study indicates that it would take 8 years to plan the drawdown alternatives and from 4.5 to 10.5 years to implement the drawdowns. The reasons for these longer timelines should be explained in context with the timelines for breaching the Lower Snake dams.

Comments on Biological Components

23

- "Loss of barging would substantially reduce overall survival of juvenile migrants unless low ocean survival of transported fish is assumed." (page 20 Executive Summary) This statement uses the medium range for the high D values. The assessment of benefits should be calculated both ways with medium values from both the low and the high D value range and presented in the draft study.

- Only upper Columbia spring chinook were used in the passage and life cycle analysis. However, the recent QAR analysis was not included. The final study must include the QAR analysis. There would be benefits for other listed species, steelhead, sockeye, Pacific Lamprey and upper Columbia native resident fish (Williams et al. 1996). The final study should include these benefits.

- The summary states that the current reservoir habitat supports an estimated 5500 natural spawners, but there is no rationale given for this estimate. Before impoundment, this section of the river now occupied by the John Day pool supported an estimated 34,000 adult spawners (Fulton 1968; Corps 1951 in Sheer et al. 1999). This estimate should be included in the final study. The rationale for the draft study estimate should be given or this estimate should be removed from the final study.

- The report states that Handford Reach fall chinook would be negatively impacted by the removal of the reservoir by reducing the lentic rearing habitat that the fish encounter in the John Day pool. However, several key reports specific to Columbia Basin fall chinook life histories (Rondorf et al. 1999; Sheer et al. 1999; Reimers 1973; Lichatowich and Mobrand 1995) note that subyearling fall chinook production is enhanced and even dependent on critical habitat and the food web of lentic river systems. The poor growth and condition factor (K) of Snake River subyearling chinook that rear in Lower Snake reservoirs compared to the robust condition for subyearling chinook that rear in the riverine Hanford Reach illustrates this point. The

Corps of Engineers Response

21. Seasonal drawdown was not considered in the analysis due to the many impacts to shoreline features. For example, seasonal drawdown would greatly impact the integrity of the road and railroad embankments. The temporary increase in turbidity would also greatly increase impacts to reservoir sedimentation.

22. The schedules are included in the Engineering Appendix, Structural Analysis Section. The schedules for John Day Dam and the Lower Snake River Dams are independent.

23. The Regionally developed PATH modeling approach was used to estimate potential biological benefits that might result from John Day drawdown, with and without drawdown of the four lower Snake River dams. PATH modeling hypotheses concerning "extra mortality" included one attributing this mortality to effects of fish passage through the Columbia River hydropower system. Under this assumption, benefits of drawdown were maximized because drawdown would contribute to reduction of "extra mortality".

To effect this "extra mortality", a "D-factor" was used in modeling to impart a differential mortality to fish that were transported from the Snake River to below Bonneville Dam, as opposed to those that swam in-river through the system of reservoirs and dams. The D-factor was calculated as the proportional survival difference between transported and non-transported fish, so a lower D value resulted in a larger proportional survival rate for non-transported fish over transported fish.

Under the PATH modeling approach, potential biological benefits from drawdown were estimated for Snake River spring/summer chinook salmon using prospective D values ranging from 0.65 to 0.80 and for Snake River fall chinook salmon using prospective D values ranging from 0.05 to 1.00. Estimated potential benefits from drawdown were highest using D values of 0.65 for Snake River spring/summer chinook and 0.05 for Snake River fall chinook salmon. These are the results reported in the Phase I report.

Recent data from PIT tag studies analyzed by National Marine Fisheries Service suggests that D values may be much higher than those used by the Corps to generate the results reported in the Phase I report. However, for purposes of the Phase I reconnaissance-level study the Corps elected to use modeling results that identified the maximum potential benefits that might reasonably be derived from drawdown.

a) The navigation lock would not need to be modified if drawdown was only seasonal. River traffic would still be possible though out the year but deep draft barges would only be usable during the time of year when the reservoir was at a higher elevation than spillway crest.

b) See comments 1 and 3 of the engineering appendix.

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Corps of Engineers Response

24. Assessment of potential benefits for other fish species (e.g., steelhead and lamprey) is not necessary to meet the goals of the Phase I study.

25. The rationale for the estimate of potential change in fall chinook production potential in the John Day reach under the various drawdown alternatives, based on modeled estimates of change in potential spawning habitat, is presented in Section 7 "Potential Effects on Spawning Adult Salmonids" in the Aquatic Resources Technical Appendix. Results of this analysis are summarized under Section 7.17.4 of the Phase I Study summary report.

26. The statement in question was a typographical error and has been corrected. In addition a revised analysis incorporating a higher smolt-to-adult survival rate for naturally produced versus mitigation hatchery fish resulted in a larger benefit under drawdown conditions than reported in the draft Phase I report.

drawdown alternative will create lotic habitat essential for subyearling summer and fall chinook production (Williams et al. 1996).

27

- As noted in the comments to the USFWS Planning in Aid report, natural river drawdown will eliminate adult passage losses through the fish ladders. A spillway crest drawdown would reduce the vertical elevation and significant energy expenditures that adult fish must gain in surmounting the dam. Geist et al. (1998) noted that these expeditures are significant and can limit spawner distribution and success. Lichatowich and Cramer (1979) noted that these were key parameters that influence overall stock production. The final study should address these important issues.

Conclusion

CRITFC appreciates the opportunity to comment on the draft study. There are numerous and important issues that have yet to be addressed and resolved regarding the draft study. The status of upper Columbia chinook and steelhead stocks, recently analyzed by NMFS in the QAR process, indicates that the survival of these stocks that must migrate as juvenile and adults through the John Day pool must be increased four to five fold if they are to be maintained at minimum levels.

From an ecological perspective, creating a free flowing salmon refuge by drawing down John Day pool is critical and was proposed by the ISG (Williams et al. 1996). The Corps must carefully examine, in detail and with an independent review, consider all of the relevant factors surrounding John Day drawdown.

Thus, it is critical that the Corps continues to examine John Day drawdown in a Phase II effort. As part of this effort, the Corps should immediately initiate a consultation process with the tribes so that tribal cultural resources, including restoration of salmon and other fish and wildlife resources, are fully considered from the tribal perspective.

Should you have questions pertaining to these comments, please contact Bob Heinith at (503) 731-1289.

Sincerely,

Don Sampson
Executive Director

Corps of Engineers Response

27. We concur. Additional, in depth, investigations will be designed in cooperation with fisheries management agencies and Tribes for implementation under Phase II of the John Day Drawdown Study, if continuation of the study is authorized and funded by Congress.

Attachment: CRITFC Comments on USFWS Planning in Aid Report-
John Day Drawdown Phase I Study

Cc: Tribal Fish and Wildlife Committees, Program Managers, Tribal Attorneys, State and Federal Fishery Agencies, EPA

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ATTACHMENT

CRITFC May 1, 2000 Comments
on USFWS Planning Aid Report
for John Day Drawdown Phase I Report

28

In general, CRITFC has found that the Planning in Aid Report (PIA) focuses a great deal on exotic species, recreation and agriculture that would be impacted by John Day drawdown. The differences in analyses of impacts between John Day drawdown alternatives in the PIA and analyses of impact from drawing down the Lower Snake dams to natural river in the draft Coordination Act Report for the Lower Snake Feasibility Study are marked. While the CAR supports a normative river for salmon and wildlife for the Lower Snake, the PIA to focuses on the detrimental impacts to fish and wildlife that would occur with John Day drawdown options. The PIA should focus on the beneficial attributes to fish and wildlife from restoring a normative river section in the John Day project area consistent with the CAR and *Return to the River* (Williams et al. 1996). The PIA should include a discussion of the potential benefits to upper basin fish and wildlife in of stabilizing upriver storage reservoirs, which could result from drawing down the John Day pool. Finally, the existing PIA is very lacking in references to supporting scientific literature.

Given these fundamental deficiencies of the PIA, we request that the USFWS amend the existing PIA to resolve these issues and the following points that are raised in more detail and circulate the draft amended PIA for additional regional review. We recommend that the USFWS submit the final amended PIA report to the Corps for consideration in a Phase II Drawdown Process.

Specific Comments

p. 2 Description of Project Area

Figures 1 and 2 as presented in the PIA are too small to be of use in estimating detailed changes to channel width and other features presented in the text. Please expand the size and detail of the figures to make them useful for the text.

It would also be very useful to have a detailed, large scale overhead drawing of the dam and land area immediately surrounding it.

28. Comments on Attachment C, Planning Aid Letter (PAL) were forwarded to the US Fish and Wildlife Service. This document was considered a final product and included as an attachment to the Wildlife Resources section of the Technical Appendix.

p. 3

Alternative 1. Drawdown to spillway crest without flood control. It is incorrect to say that "....the river would flow uncontrolled over the spillway" because the river is controlled by releases from upstream storage projects. Also, 1982 was not an average flow year. The January-July runoff for the 1982 water year was about 135 MAF at The Dalles, making 1982 the eighth highest flow year in the 1929-1997 period of record. Examples of average flow years are 1981 and 1995 when the January- July runoff at The Dalles was about 100 MAF. This is an important point because the PIA carries this error through most of the report and draws important implications from it. An amended PIA should correct this error. Further, the Corps should base their analysis of John Day drawdown in the Phase I Report using three comparative cases for flows- a high, medium and low runoff years, based on the ten highest, ten middle and ten lowest flow years in the 60 year historical record. The overall analysis is deficient without this fundamental approach.

Alternative 3: It is correct to say that the concrete works of the dam would not be breached, but the earthen berm on the north side (Washington side) would be removed to allow the river to flow around the powerhouse and spill way.

Table 1: It is not useful to present this information without some detailed overlay maps showing the appropriate reservoir elevations by alternative.

Fish Resources

Without the Project

p. 4

1st Paragraph: We recommend that a figure showing the existing and proposed treaty fishing access sites be added to the document.

2nd Paragraph: 1998 counts of Pacific lamprey were omitted from the text and must be included since they are an important and imperiled native anadromous fish. Data on counts are located with the Washington Department of Fish and Game, Fish Count Division.

The amended PIA should place the alternatives within an "normative river" or ecosystem perspective (Williams et al. 1996; Power et al. 1995; Ward and Stanford 1989). The Columbia River between John Day and McNary dams is much more than a passage corridor and is an important spawning and rearing area for anadromous fish, and the habitat is degraded by the presence of the impoundment and dams. For example, predation by birds and fish on salmon is concentrated in the tailraces and forebays of the dams (Jones et al. 1996; Poe and Gadomski 1994). Thermal regimes have been significantly changed the presence of the dams and impoundment (Jaske and Gobel

1967). Based upon investigations in the Snake River pools, as compared with the free flowing Hanford Reach, primary and secondary productivity have been altered so that the abundance and diversity of higher order invertebrates has been much reduced. Also there may be food competition in that exotic species are consuming similar, likely, limited food resources needed by juvenile salmonids (Bennett et al. 1999). Finally, there are significant juvenile salmon passage losses through the concrete, particularly through the turbines and screen bypass systems, estimated between 4-20% (Whitney et al. 1997; PATH 1998). In short, the dams and impoundment have negatively impacted the entire ecological foundation necessary to promote anadromous fish production.

2nd Paragraph: Please include the history behind the drawdown concept (USFWS 1992). Specific juvenile salmon travel time estimates for specific pool elevations and flows have been developed by the Fish Passage Center and the NWPPC. Please include these in the final PIA, under the high, middle and low flow regimes discussed above. Warm temperatures caused by the John Day pool can reverse the smoltification process and exacerbate salmon diseases and parasites such as Bacterial Kidney Disease, fungal diseases and C.shasta (Li et al. 1987). There is much literature indicating a positive flow survival relationship that is not included in the PIA, for example see Cada et al. (1994), and Hilborn et al. (1994), Bennett et al. (1998). As a major reason for drawdown is increasing flow velocity, the amended PIA should include this information.

There is no mention on the John Day Dam and pool impacts to adult salmon and lamprey passage. For example adult fish are delayed in entering John Day dam fishways, and must expend considerable energy reserves climbing over the dam. These lost reserves impact the ability of salmon to successfully spawn in upriver areas.

In the first sentence the issue of in-river and ocean predation should be discussed. Please reference Table 2 (travel times) as part of this paragraph as supporting evidence of the slowing of the migration by the reservoir.

It is important to note that the runs of steelhead and salmon in the John Day are native runs.

The final PIA should expand on this paragraph by using the reference Close et al. (1995). Specific items to include in this paragraph would be the dam counts from 1996-1998 for John Day, McNary, and Ice Harbor Dams. In addition, it is important to point out that only the John Day River supports a run of Pacific lamprey, they have been extirpated from other nearby tributaries (Umatilla, Yakima, Walla Walla). Finally it is important to note that the only commercial fishery of Pacific lamprey has been on the Willamette River at the falls, harvests in other areas upstream of Bonneville Dam have focused on the cultural, ceremonial, and subsistence needs for this resource.

Data detailing the decline of Pacific Lamprey also must be included along with that of the anadromous salmonids. Again see the WDFW fish count records for this information. See also Close et al. (1995).

6th Paragraph

It should be mentioned that the most important resident game fish (also a native fish) was not included, white sturgeon. We seriously doubt that there are any native rainbow trout in the mainstem Columbia River. As for the other species mentioned, they are all exotics and many are predators and competitors of native fishes, resident and anadromous.

There should be a citation for this paragraph regarding the comment that "....50% of the fishing effort occurs in backwater areas" .

p. 6

1st Paragraph: Studies are mentioned the first paragraph on the importance of the backwater rearing areas, other than Montgomery and Fickeisen (1975). Please list these studies. What is the value of these backwater areas to the native fish fauna? Are the introduced exotics in competition with and preying upon native fish?

2nd Paragraph: Please be species specific with regard to the native and nonnative fish fauna in this paragraph, do not lump them by families (e.g. dace, suckers, sculpins), but identify them to species. This is particularly important for such species as the bridgelip sucker, which appears to be in decline in many reservoir areas.

With the Project

p. 6 Drawdown to Spillway Crest

1st Paragraph: The first sentence makes mention that the river would flow uncontrolled except under the "flood control option" every 2-5 years. We recommend that this "option" be very specifically described as to what it is and the criteria that were used to arrive at the 2-5 year option. Seasonal flooding during the spring salmon migration is the action by which these fish are moved to the sea. If the Corps enacts this option, it might reduce a key drawdown objective-reduced travel time. Many other resident fish species depend upon the cues and signals provided by spring freshets, particularly white sturgeon, these are not included in the PIA. Also as mentioned earlier, please provide detailed overlay maps to accompany the reservoir elevations listed in Table 1.

2nd Paragraph: In the first sentence, we believe that the water particle travel time should be 1.0 to 3.2 days, not 1.7 to 4.8 days as listed.

p.7

1st Paragraph (starts on Page 6): Specify the changes to the adult fishways at John Day and McNary that would occur under this option. Adult passage would be improved because adults would expend less energy in climbing a reduced vertical elevation.

2nd Paragraph. What hard evidence is there that juvenile habitat will be adversely affected by returning the river to a normative state? If there is any documented evidence, please provide it, otherwise delete this language from the PIA. There is plenty of evidence that indicates that habitat will be enhanced by drawdown (Williams et al. 1996), including turbidity levels from entrainment organic sediment that would become uncovered. Junge and Oakley (1966) correlated the loss of salmon production from the construction of dams and impoundments and the loss of river turbidity. Under drawdowns, fluvial thermal regimes would be reinstituted in the river stretch several miles below John Day Dam and McNary Dam. Karr (1994) estimated that under a spillway crest drawdown at 100 kcfs flow, temperatures at the forebay of the powerhouse would be reduced by 3 degrees F over temperatures at full pool.

Please cite evidence that smolt mortality would be increased by "one percent" at the McNary powerhouse with drawdown. The final PIA should contain surface bypass at John Day as a viable and credible passage route that could be implemented under "flood control storage".

The backwater fish habitat estimated to be lost under drawdown appears to be laden with predators and exotic competitors and is a thermal barrier for summer migrants. The final PIA should seriously question the worth of this habitat with respect to native fauna. Aquatic invertebrates produced in these areas with high biological oxygen demand are principally chironomids that have very low energy content compared to mayflies and stoneflies typically found in fluvial systems (USFWS 2000). The overall impact of drawdown in creating better, more productive shoreline habitat should be included in the amended PIA.

In any drawdown scenario, tribal cultural sites uncovered would have to be protected and mitigated. This needs to be included in the amended PIA.

p. 8

1st Full Paragraph: Please provide citations and the reports completed as appendices from the consulting engineers who prepared the information presented in this paragraph.

2nd Paragraph: What precautions have been prepared to manage for the anticipated impacts to these hatcheries and why were they not listed? There must be something similar to the canal proposals that are included in this document for the irrigation pump stations.

3rd Paragraph: The PIA misses the point that by returning the river to a lotic condition, the numbers of these introduced exotic predators and competitors would likely be reduced, thereby reducing the impacts on threatened anadromous salmonids, thereby reducing their losses during in-river migration. With natural production increased, hatchery mitigation could be gradually reduced, specific to the impacts of the John Day Project. Walleye

predation could be responsible for the decline of the sandroller, a sensitive species, native to the Columbia River system. We anticipate that walleye and smallmouth bass populations will remain present in fishable numbers even with a drawdown to spillway crest.

p. 9

1st Full Paragraph: Please provide some additional information on the positive aspects of the proposed action on angling opportunities. The likely increase in returning adult salmonids over time could more than offset the loss opportunities for exotic introduced species.

2nd Paragraph: As with other human amenities created after the creation of the reservoir that flooded and/or destroyed the amenities that existed prior to its creation, these can and likely will be modified and or rebuilt.

3rd Paragraph: Our only comment is that based upon the figures presented earlier in this report, much effort has already be delegated to the formation and location of canal routes on both sides of the river. Please reference as such in this paragraph.

Drawdown to Natural River

Generally our comments listed for the drawdown to spillway crest are applicable to the similar paragraphs detailing impacts listed under this section.

p. 10

3rd Paragraph: This section needs supporting citations. Water velocities will be greater in the free-flowing section after the proposed action and overall fish passage efficiency should increase as found at Little Goose Dam (Tiffin et al. 1999). Under the natural river drawdown alternative, the ladders, especially at the south ladder complex, would no longer be used. Adult passage and water temperatures in these ladders has been poor and temperatures exceeded water quality standards for 67 days at the south ladder and 55 days at the north ladder (Dalen and Stansell 1998). This alternative would also eliminate adult losses from fallback delay and the reduction of extant injuries and subsequent infections and disease from hitting and scraping the rough concrete walls of the ladders (Li et al. 1987).

p. 12

1st Full Paragraph: Tribal fishers would have to make some significant adjustments in fishing access, although the adjustments would not be as difficult as portrayed in this section. Modifications to access sites would be needed. Additionally, new dipnet fishing sites would be created once the waters had dropped and these sites would be useable for this traditional style of fishing.

WILDLIFE RESOURCES

WITHOUT THE PROJECT/ WITH THE PROJECT

It is likely that the drawdown areas would revert back to the riparian types and conditions that existed historically, prior to the impoundment of the river behind John Day Dam. This would create a lotic interface that would support many wildlife species. Water quality would greatly improve along shorelines as temperatures would be reduced and dissolved oxygen would be increased with increased water velocities. It is very likely that the drawdown areas would resemble the complex habitats and diversity of wildlife along the shores of the Columbia River in the Hanford Reach

The loss of the backwater area habitat will occur in the short-term, but should also be replaced over time, particularly if a detailed mitigation plan is enacted promptly and efficiently. The creation of the reservoir also resulted in a tremendous loss of both riparian and upland habitat. In time, new areas were created and replaced what was lost, *without* any mitigation such as plantings, area seedings, or general revegetation. A more rapid transference from the lentic to lotic shoreline could occur if mitigative efforts were implemented.

Deer and small mammal populations would benefit from drawdowns because they would settle close to the river and thus be located further away from highways and farms where they are susceptible to mortality. The resulting return of the flooded 6,700 acres of islands would be beneficial to small mammals and waterfowl. All species mentioned in the text could benefit by the increased land area with the project, provided it was protected as wildlife habitat and not converted back to irrigated circles and orchards.

It appears to us that this section of the report is focused on impacts to agricultural from is not on the impacts to wildlife and fish. Two of the four figures are detailed illustrations that show paired canals on both sides of the river to maintain the agricultural integrity of the area. Where are the mitigative plans for riparian and upland restoration efforts? These should be included.

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My name is Jeff Fryer and I have been a fishery biologist with the Columbia River Inter-Tribal Fish Commission for over 10 years. One of the projects I supervise allows me the privilege of spending almost 2 weeks on the Hanford Reach-the last undammed stretch of the Columbia River accessible by salmon. Late in the evenings, I marvel at the productivity of the Reach-clouds of mayflies hatching, huge schools of juvenile chinook salmon swimming through the shallows, and plentiful bird life. And yet, Leonard Fulton in 1968 described the most productive reach of the Columbia River as being the upper end of the John Day Reach, the very area that could be restored if the elevation of the John Day Reservoir was reduced to spillway crest. Just think of another Hanford Reach sized run of fall chinook salmon to feed commercial, sport, and tribal fisheries from Alaska to Boardman.

Restoring this upper reach would likely greatly benefit other juvenile salmonids. I often wonder how much of a rejuvenating effect the Hanford Reach has on upstream stocks. Perhaps the Hanford Reach is a big reason why mid-Columbia stocks are doing better than those in the Snake River-they have about 50 miles of highly productive free flowing river to recover from the mid-Columbia hydro system. Other biologists have indicated to me how unproductive those reservoirs are and how salmon migrating through them seem to be starving-perhaps they recover sufficiently in the Hanford Reach to better survive the remaining migration. The upper John Day reach could serve as a similar refuge for Snake River stocks as well as further helping mid-Columbia stocks.

When I read through the Corps study filled with it's praise for it's bypass screens and fish barges, I wonder about the future for mid-Columbia

sockeye salmon which are stocks of special interest for me for I wrote my dissertation on them. These stocks are declining rapidly. They do not benefit from smolt transportation and they suffer per-dam descaling rates as high as 30% from screens such as those at John Day. And a descaled juvenile sockeye is a dead sockeye-they are very sensitive to descaling. I suspect that a major reason for their recent decline is the increasing use of screens at mainstem dams. And lamprey, also rapidly declining in numbers, are impinged and killed by screens. What does the Corps propose to do when mid-Columbia sockeye salmon and lamprey are listed under the ESA? Those screens will then be seen as the killers that they are.

Finally, I wonder how this decision fits into a salmon recovery plan. Thus far, I have only heard what we are not going to do to save salmon (such as draw down John Day, preserve the estuary from projects just as the channel deepening, or remove the Snake River dams). Just what are we going to do to recover salmon? If we are not going to take bold actions such as removing the lower Snake River Dams, we should look more closely at other measures such as reducing the level of John Day Reservoir.

1

Therefore I urge you to recommend continuing study of the drawdown of John Day Reservoir. Look closer at the effects of a restored section of river on all salmon runs in providing additional spawning and rearing areas as well as improved survival on the downstream migration . And look closer at the lethal effects, particularly on sockeye and lamprey, of the fish bypass screens. In this river basin we have left only 50 out of over 2000 miles of mainstem Columbia and Snake river habitat which is relatively easily accessible to fish. It is no wonder that virtually all salmon runs in the

Corps of Engineers Response

1. The National Marine Fisheries Services Biological Opinion and the Federal Caucus All-H paper are scheduled to be finalized in the summer/fall of 2000.

2-24-00 John Day Drawdown Public Hearing

My name is Bob Heinith. I am a fisheries biologist and I manage the hydro program for the Columbia River Inter-Tribal Fish Commission. The Commission is comprised of the four lower Columbia River tribes, the Yakama Nation, the Confederated Tribes of the Umatilla Indian Reservation, the Confederated Tribes of the Warm Springs Reservation and the Nez Perce Tribe. These tribes have aboriginal rights under treaties with the United States to take salmon at all usual and accustomed fishing sites. In order to continue to exercise these rights into perpetuity, there must be healthy and abundant salmon populations in the basin.

Part of my charge is to evaluate alternative scenarios to increase salmon and other anadromous fish production by improving mainstem habitat and fish passage through the mainstem dams and reservoirs.

No one with any scientific grounding in the basin is arguing whether or not Columbia River salmon are in real trouble. While the value of these salmon is different for different people, most people in the basin agree that something should be done to begin to turn things around. The question, in terms of science, is what do we do that will have the greatest benefit, given that time is running out.

Over two decades of scientific reports, founded on data and observations in the hydrosystem, indicates that in order to bring balance and restore salmon populations, juvenile and adult mortality in the hydrosystem must be significantly reduced, both in terms of passage mortality, and in terms of partially restoring some critical mainstem habitat. Screen systems injure salmon and truck and barge transportation removes salmon from the river habitat that they need for food, growth and maturation. The scientific studies in PATH and other basin efforts show that the starved and injured juvenile salmon suffer large mortality upon release from the trucks and barges. And the salmon populations continue to dwindle toward extinction.

That the Corps of Engineers would even conduct a John Day Drawdown Phase I effort was a result of years of study of salmon mortality in the John Day reservoir and an overwhelming desire by the entire region's fishery agencies and tribes to reduce this mortality. One study by the NWPPC indicated that the salmon mortality in John Day pool is equal to all of the mortality from the four lower Snake Reservoirs. The Independent Scientific

Group, a panel of independent scientists convened by the NWPPC, concluded that restoring river habitat by drawing down John Day reservoir, adult salmon spawning habitat would be recreated and the salmon would take advantage of this habitat. They also noted that restoring the river habitat would be a great benefit to juvenile salmon because the diversity, quantity and quality of aquatic insects in a free flowing river would increase growth and survival of juvenile fish and these fish would increase returning adults.

Unfortunately, the scope of the Corps Phase I Study has been much too limited to properly and appropriately examine the benefits of drawdown to the salmon resource. Although the Commission and others in the region have attempted to give input as to how the biological and other analyses should be conducted into the Corps study, we have found that the Corps has largely disregarded this input.

1 For example, the size of the reservoir and the capacity for the reservoir to hold onto heat causes conditions that are lethal for salmon. For example, one study indicated 150,000 salmon smolts were killed by predators for every degree increase in temperature. High temperatures also reduce limited adult salmon energy reserves, causing spawning failures and kill eggs in female salmon. In a 1994 Commission scientific analysis presented to the NWPPC, we found that if John Day reservoir was drawn down to spillway crest, the water temperature between McNary and John Day dam would be reduced by three degrees over that if John Day was held at its normal level. This is because the smaller pool would have a reduced capacity to act as a solar collector.

2 As another example, we asked the Corps to involve PATH, the regional group of scientific experts, to provide their collective expertise to model benefits and impacts of the drawdown on salmon populations. The Corps responded by selecting only one biologist, with his own biases, to do the analysis.

3 We asked the Corps to fund some important field work to gain better insight into changes in pool habitat conditions under the existing and drawdown scenarios, but the Corps did not provide funding to conduct this important work. There are other important omissions in the Study relative to obtaining

Corps of Engineers Response

1. The Water Quality Section (under the Engineering and Technical Appendix, Volume 2) of the Phase I report indicates that the major effect of impoundment by John Day Dam on historic water temperatures in the John Day reach was to delay warming in the spring and cooling in the fall. Because of the relatively rapid exchange rate for the reservoir's volume, there is very little change (e.g., 3° to 5°C) in temperature with depth, even during summer. An analysis of PIT tag data by Skalski and Townsend (Attachment D to the Biological/Environmental Technical Appendix, Aquatic Resources Section of the Phase I report) for juvenile fish passing through the John Day reach showed no correlation between juvenile migrant survival probabilities and associated river operations or conditions, including water temperature, in 23 of 24 independent analyses during 1998. The Phase I report concludes that the effects of drawdown on water temperature are expected to be minimal and of little benefit to aquatic life. It points out that the possibility of higher annual peak temperatures may actually be detrimental.

2. The Corps' assessment of potential biological benefits associated with drawdown of John Day Dam leaned heavily on results of the Regionally developed PATH modeling approach. A range of potential benefits was reported as a consequence of the PATH modeling approach, depending upon the assumptions made regarding prospective model parameter values. The Corps chose to report the high end of this range under the Phase I study. As a consequence, these results represent an optimistic assessment of actual benefits that might be realized under drawdown. The Corps would expect further study to provide a better estimate of biological benefits likely to be realized from drawdown, but we would also expect this estimate to be less than the benefits reported under Phase I.

3. The scope of the Phase I study was coordinated with the tribes before submitting to the U.S. Congress for approval. The Corps was subsequently provided funding for the study as scoped. Further studies are not necessary to meet the goals of the Phase I study.

a balanced perspective on economics, recreational benefits and cultural resources.

4 Thus, whether for lack of time, funding, or will, the Phase I study, as it currently exists, appears as a speculative, selective effort that has not even begun to honestly and fairly examine important biological, economic and other issues. There has been little effort to gain public perspectives on this issue.

For these and other reasons, if the region is serious about salmon recovery, the Corps must move forward and recommend continuing the effort to examine John Day drawdown alternatives in a Phase II effort and a NEPA process which will allow for a full examination of the benefits and impacts. This will open up the issue to a full and honest debate and let the public play their proper role as to conflicts and values between impacts and benefits.

We owe this not only to ourselves, but to future generations who cannot speak for themselves but depend upon us to do the right thing .

Corps of Engineers Response

4. During the scoping process, February and March 1999, a series of seven public open houses and information meetings were held in Alaska, Montana, Idaho, Oregon and Washington. The goals and methods of those meetings are detailed in the Public Involvement/Agency Coordination Appendix. The meetings were announced through the media. Separate one-on-one sessions or small group discussions, as appropriate, were held with tribal representatives of the Yakama, Warm Springs, Nez Perce and Umatilla tribes, as well as the Columbia River Intertribal Fish Commission. A Planning Aid Team, to examine data and findings related to fish, was established. The tribes and the public were invited to participate. A few individuals chose to participate however, neither tribal biologists nor other tribal representatives took part. A web site was established and cards with the site address were available at all public information meetings. This site had links to the Study Team Mailbox, which many individuals took advantage of to share information with the study team, and their thoughts about drawdown, salmon, wildlife, etc. An interagency wildlife coordination group also was established. Tribal biologists were invited to participate, but did not respond. The purpose of this group was to review the data and analysis used for this study and to discuss the validity of each. During February and March 2000, the John Day study team participated in a second series of open houses/public meetings in Idaho, Oregon, Washington, Montana and Alaska.

5 • The Corps failed to include prior drawdown studies that indicated a benefit for salmon and more reasonable and alternative engineering concepts. A 1994 NWPPC study stated that John Day drawdown could have as great a benefit for salmon if not greater than drawdown of the Snake River reservoirs.

6 • The Study implies that drawdowns would negatively impact tribal cultural values, properties and practices, without consulting with the tribes. The Study must be expanded to include the tribal perspective of value of salmon as a tribal cultural resource.

Recommendations

- The Corps should formally consult with the tribes on the Phase I Study before the Study becomes final
- Because the full Phase I Study has yet to be issued, the Corps should extend the comment period of the study until April 30, 2000 to allow the tribes and others a full opportunity to comment on the draft Study and to allow time for Corps-tribal consultation
- Because the scope of the Phase I Study was extremely limited, and the fact that past studies indicate that John Day drawdown would have huge benefits for the salmon resource, the Corps should recommend continuing analysis through a Phase II Study and NEPA process.
- Drawdown should be considered as a key action for salmon restoration, in concert with other hydro and mainstem habitat improvements.
- This issue is too critical to tribal and non-tribal peoples and future generations to end in a selective, speculative and incomplete evaluation that has resulted in the existing Phase I Study

Corps of Engineers Response

5. None of the documents sited provides a study of the potential biological benefits or environmental impacts and costs associated with John Day drawdown alternatives, but merely hypothesizes that benefits of drawdown might be substantial. As a result, Congress directed the Corps to perform a study to determine likely benefits, environmental impacts, and costs associated with John Day drawdown alternatives. Phase I of the Corps' study is a one-year reconnaissance-level investigation from which Congress can determine whether additional study is warranted.

6. The Portland District of the Corps of Engineers hosts a multi-agency, multi-Tribal Cultural Resource Work Group, the Wana-pa Koot Koot. This group is charged with analysis of cultural needs and submission of recommendations to the District Commander for Cultural Resources compliance. The issue of the John Day Drawdown Study was first raised to the group at its first session on 6-7 February 1997. Periodically the Corps representative at these meetings has updated the workgroup (for potential action planning when and if a drawdown occurred). In preparation for this, the workgroup prioritized compliance actions on the Lower Columbia by beginning inventories and histories at the John Day project. In 1998, a gathering of elders was held at Rock Creek to inform and explain to the elders the compliance actions, which were being taken, and what would occur in the future. Similar gatherings, oral histories, place name studies and documentation of other traditional properties continue through the process of this workgroup.

STATE OF ALASKA

TONY KNOWLES, GOVERNOR

DEPARTMENT OF FISH AND GAME

OFFICE OF THE COMMISSIONER

P.O. BOX 25526
JUNEAU, ALASKA 99802-5526
PHONE: (907) 465-4100
FACSIMILE: (907) 465-2332

May 1, 2000

Randall J. Butler
Colonel, Corps of Engineers
U.S. Army Corps of Engineers
Portland District
P.O. Box 2946
Portland, Oregon 97208-2946

RE: Draft U.S. Army Corps of Engineers Report Entitled: Salmon Recovery through John Day Reservoir, John Day Drawdown, Phase I Study

Dear Colonel Butler:

The Alaska Department of Fish and Game (ADF&G) appreciates the opportunity to comment on the draft Report: Salmon Recovery through John Day Reservoir, John Day Drawdown, Phase I Study (Report). ADF&G also thanks the U.S. Army Corps of Engineers (Corps) and other federal agencies for holding four hearings in Alaska that covered this Report. Alaska has been and will continue to do its part for Snake River salmon as a signatory to the 1999 Pacific Salmon Treaty agreement.

Given the vast amount of information made available late in the process and the extremely short timeframe provided for public review, ADF&G limited our review to the fishery information included in the aquatic resources sections of the Report. Even before receiving the April 20 Revised, DRAFT John Day Drawdown Phase I Study on April 27, with comments due two business days later, ADF&G was concerned that the public had insufficient time to analyze the thousands of pages of technical information contained in the Report. The Report was not available for the public meetings and was not distributed until late March, giving people one month in which to meet the May 1 comment deadline. A 28-page document summarizing the US Army Corps of Engineers' initial investigation of the potential pros and cons of drawing down John Day Reservoir was provided to interested agencies and individuals for comment in early February (with comments due by March 31, 2000). This summary document, however, often refers reviewers to the later much more complete Report.

If the Revised April 20 DRAFT Report contains substantive changes, from the full Report released in late March, the ADF&G requests that the substantive changes be noted and given to the public and agencies to comment on during an extended comment period. Also, given the technical nature of these documents, we believe the model, assumptions, and data used in the biological and aquatic resources sections should be technically reviewed by a scientific panel. Congress should be given the best scientific information possible upon which to base its decision.

The purpose of this Phase I, reconnaissance-level study is to provide Congress with enough information to determine whether the Corps should proceed with Phase II, a more detailed feasibility-level study. The Corps' stated intent was to provide an assessment of the maximum biological benefits associated with drawdown, together with the lowest possible cost estimates

After reviewing these documents, ADF&G does not believe that the Report presents the maximum possible biological benefits associated with drawdown. Rather the Report presents the opposite picture, especially with respect to Snake River fall chinook. ADF&G has reached significantly different conclusions than the Corps concerning the benefits to salmonids from a drawdown.

Far from finding that the studied drawdown would result in a loss of fish, ADF&G believes that it would increase listed populations and could result in the de-listing of Snake River fall chinook. ADF&G finds that the Report consistently underestimates the potential benefits to listed salmonids. We believe that the Corps must fully and scientifically address the potential benefits to salmonids, before the issue of drawdown of John Day pool can be adequately addressed by the public or by government decision makers. This additional scientific analysis can be done either by:

- Extending the Phase I study for a year or more to allow sufficient time to develop scientifically sound analysis of the benefits of John Day drawdown for salmonids; or,
- Scientifically evaluating the potential benefits to anadromous salmonids of a John Day drawdown in the more detailed Phase II study.

It may be that potential costs out-weigh potential benefits derived from the drawdown of John Day pool. Before that decision can be reached, however, a scientifically sound approach must be taken to estimating the potential benefits to anadromous salmonids listed under the Endangered Species Act and other stocks of concern to fishery managers.

I have enclosed more specific comments from ADF&G staff that should be addressed in either an extension of Phase I, or the Phase II study.

Sincerely,

Frank Rue
Commissioner

Enclosure

cc: Governor Tony Knowles
Senator Ted Stevens
Senator Frank Murkowski
Congressman Don Young
Southeast Alaska Legislators

COMMENTS BY THE
ALASKA DEPARTMENT OF FISH AND GAME

CONCERNING REVIEW OF
THE FISHERY RESOURCE ASPECTS OF

A DRAFT US ARMY CORPS OF ENGINEERS REPORT ENTITLED:

SALMON RECOVERY THROUGH JOHN DAY RESERVOIR, JOHN DAY DRAWDOWN PHASE I STUDY

John Day Drawdown and Salmonids

John Day Dam is one of the 400 dams in place in the Columbia River Basin and is one of 28 major federal dams. John Day Dam forms the longest, slowest, warmest, and deadliest reservoir for salmon and steelhead on the Columbia River system. Supporters of the John Day drawdown approach believe lowering the reservoir will improve conditions for salmon and steelhead by:

1. Reducing high water temperatures,
2. Exposing extensive spawning habitat similar to the Hanford Reach spawning grounds,
3. Reducing predator impacts on migrating juvenile salmonids, and
4. Increasing river flows, thereby increasing juvenile salmonid smolt survival rates.

Phase I Report Recommendations

The principle recommendation of the Phase I Report is that no further study is required for Congress and the Region to decide on drawdown of John Day Reservoir or removal of John Day Dam. This recommendation was based upon the Corps conclusion that costs of such actions would be high and benefits to anadromous salmon and particularly listed salmon would be low. The *Recommendations* section of the summary report states:

> *"The effects of all four alternatives on fish were evaluated in this study, and the maximum potential fisheries benefits were considered in formulating a recommendation. The maximum benefits to threatened and endangered Snake River and Upper Columbia chinook salmon species are derived from drawdown to natural river without flood control. Refined benefit estimates that would be developed during a Phase II study are likely to be substantially less than those reported, further supporting the recommendation not to proceed with Phase II." (emphasis added)*

The aquatic resources sections of the Report dealing with anadromous salmonids, however, are a poor representation of potential impacts and benefits, because they greatly minimize the benefits to salmonids. The Report's analyses conclude that if a drawdown were undertaken, the result would be about one half the current number of harvestable fish. Such a statement leads the

reader to conclude that benefits to anadromous salmon and users of this resource are negative and come at high costs as explained in other sections of the Report. However, there is little to no credible scientific basis for these statements and conclusions about fish populations.

The Corps' conclusions regarding the estimated maximum potential fishery benefits of a John Day Reservoir drawdown are inaccurate. Potential benefits associated with these possible recovery actions are **minimized** in the Report, **not maximized** as stated by the Corps. If the Corps' intent was to gain consensus from reviewers that they have captured the potential maximum benefits of these recovery actions in the Phase I study, they have failed. The aquatic resource sections of the Report requires a complete rewrite in either the Phase I study or the Phase II study to accurately portray the maximum potential benefits to fish stocks.

Benefits to Salmonids of Drawdown

1

Conclusions reached by the Corps with regard to potential anadromous salmonid benefits do not even follow a simple common sense approach. The Corps projects that drawdown to natural river level will result in a 50% reduction in harvestable numbers of fall chinook. This conclusion flies in the face of the Corps' own statements in the Report. For example, the Corps states that the potential natural spawning of fall chinook would increase ten-fold from a level of 5,500 to a level of 55,000 fish (see Report at 105, Table 41). Furthermore, the Corps also states that rearing habitat for these fish will improve given that a drawdown will result in more rearing area of better, more diverse and richer, quality (see Report at 96). Clearly, anyone using a common sense approach would conclude that improved quantity and quality of freshwater spawning and rearing habitat will lead to an increased and stronger fall chinook salmon population, not a reduction on the order of 50%.

The Corps' conclusions and conjectures concerning fall chinook stock abundance are colored by assumptions concerning mitigation hatchery operations. At the current time, hatcheries release fall chinook into the Hanford Reach as a mitigation action for losses of fish incurred due to operations of John Day Dam and Reservoir. The Corps assumes the elimination of these hatchery activities and the loss of their benefits to existing fisheries thereby offsetting the potential benefits of increased naturally spawning fall chinook from the drawdown of the John Day reservoir. The Corps' conviction, with regard to these assumptions, dramatically strengthens as one goes from the more detailed appendix to the Report, and then to the summary that concludes with the assumption that there will no longer be hatchery production (see Summary at 22).

The Alaska Department of Fish Game does not believe that the major hatchery activities associated with the Hanford Reach will be altered due to decisions to remove John Day Dam or potential drawdown of its reservoir. This hatchery supplementation work is one of the most successful chinook enhancement efforts on the entire west-coast. If action associated with John Day occurs and John Day mitigation money is lost to this hatchery work, other funding will quickly be identified. If a funding short-fall does occur, something may go away, but it will not be this specific chinook enhancement effort. This hatchery loss assumption by the Corps is an inappropriate approach for evaluating potential benefits to anadromous salmonids through the recovery action of removing John Day Dam or drawdown of its reservoir. The Corp should

Corps of Engineers Response

1. The Corps performed two separate analyses regarding potential benefits to Upriver Bright fall chinook salmon under the Phase I study. One analysis was consistent with the Regionally developed PATH modeling approach and examined potential changes to the existing fall chinook stock currently reproducing naturally in the Hanford Reach located above McNary Dam. The results of this analysis indicated that the productivity of fall chinook currently produced above McNary Dam in the Hanford Reach would likely decrease. This was primarily because of lower rates of survival for juvenile migrants that would occur with termination of barging.

A separate, and much less rigorous, analysis examined the maximum potential benefit that might result from an increase in natural fall chinook spawning below McNary Dam under drawdown conditions. No estimate of the number of spawners currently using habitat in the John Day pool exists, but we were able to estimate (based on hydraulic modeling of depth and water velocity criteria) the quantity of potential spawning habitat that currently exists and the quantities that might exist under drawdown conditions.

Potential benefits from drawdown were estimated in terms of the change in quantity of potential spawning habitat under the assumptions that this habitat would eventually become fully usable, that it would also become fully seeded, and that the availability of spawning habitat (rather than rearing habitat) is limiting to the production of fall chinook salmon in the Columbia River Basin. Unfortunately, there are no data available currently to verify any of these assumptions. These assumptions will lead to a high estimate of potential Upriver Bright fall chinook production. Accumulation of fine sediment within the reservoir and continued attenuation of peak flows following drawdown may result in long-term compaction of spawning gravel rendering it unusable. Alternatively, hydraulic mechanisms may be able to restore functional spawning habitat. Fisheries or other mortality factors may prevent population growth that will allow full seeding of restored habitat for many years, or high ocean survival rates may result in reaching full seeding levels fairly rapidly. Because of its relative abundance, there is a higher likelihood that the URB fall chinook population is affected by density-dependant mechanisms than other anadromous fish populations in the Columbia Basin. If so, the availability of rearing habitat is as likely as spawning habitat to be limiting URB fall chinook productivity.

reader to conclude that benefits to anadromous salmon and users of this resource are negative and come at high costs as explained in other sections of the Report. However, there is little to no credible scientific basis for these statements and conclusions about fish populations.

1 cont.

The Corps' conclusions regarding the estimated maximum potential fishery benefits of a John Day Reservoir drawdown are inaccurate. Potential benefits associated with these possible recovery actions are **minimized** in the Report, **not maximized** as stated by the Corps. If the Corps' intent was to gain consensus from reviewers that they have captured the potential maximum benefits of these recovery actions in the Phase I study, they have failed. The aquatic resource sections of the Report requires a complete rewrite in either the Phase I study or the Phase II study to accurately portray the maximum potential benefits to fish stocks.

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Corps of Engineers Response

1. (continued)

The benefits resulting from potential increase in natural production of URB fall chinook in the John Day reach were compared to the benefits that would be realized under the existing hatchery mitigation program, which was established to mitigate for lost natural production in the John Day reach. The Corps would likely have no authority to continue funding this mitigation program if the natural production for which it mitigated was restored. The draft analysis and results were revised in the final Phase I report to recognize the potential difference in smolt-to-adult survival rates for naturally produced versus hatchery fall chinook based on data from natural and hatchery production in the Hanford Reach reported in Chapman et al. (1994), as cited in the Phase I report.

Because of the very different nature of the separate URB fall chinook analyses, the Corps chose not to attempt to integrate their results but, rather, to present their results separately in the draft Phase I report. However, several parties commenting on the draft Phase I report requested that the Corps attempt to integrate the separate analyses regarding potential production changes occurring above and below McNary Dam. As a result, the Corps has integrated these analyses in the final Phase I report and has presented a single result regarding likely overall impacts of John Day drawdown on production of URB fall chinook.

reader to conclude that benefits to anadromous salmon and users of this resource are negative and come at high costs as explained in other sections of the Report. However, there is little to no credible scientific basis for these statements and conclusions about fish populations.

The Corps' conclusions regarding the estimated maximum potential fishery benefits of a John Day Reservoir drawdown are inaccurate. Potential benefits associated with these possible recovery actions are **minimized** in the Report, **not maximized** as stated by the Corps. If the Corps' intent was to gain consensus from reviewers that they have captured the potential maximum benefits of these recovery actions in the Phase I study, they have failed. The aquatic resource sections of the Report requires a complete rewrite in either the Phase I study or the Phase II study to accurately portray the maximum potential benefits to fish stocks.

Benefits to Salmonids of Drawdown

Conclusions reached by the Corps with regard to potential anadromous salmonid benefits do not even follow a simple common sense approach. The Corps projects that drawdown to natural river level will result in a 50% reduction in harvestable numbers of fall chinook. This conclusion flies in the face of the Corps' own statements in the Report. For example, the Corps states that the potential natural spawning of fall chinook would increase ten-fold from a level of 5,500 to a level of 55,000 fish (see Report at 105, Table 41). Furthermore, the Corps also states that rearing habitat for these fish will improve given that a drawdown will result in more rearing area of better, more diverse and richer, quality (see Report at 96). Clearly, anyone using a common sense approach would conclude that improved quantity and quality of freshwater spawning and rearing habitat will lead to an increased and stronger fall chinook salmon population, not a reduction on the order of 50%.

2

The Corps' conclusions and conjectures concerning fall chinook stock abundance are colored by assumptions concerning mitigation hatchery operations. At the current time, hatcheries release fall chinook into the Hanford Reach as a mitigation action for losses of fish incurred due to operations of John Day Dam and Reservoir. The Corps assumes the elimination of these hatchery activities and the loss of their benefits to existing fisheries thereby offsetting the potential benefits of increased naturally spawning fall chinook from the drawdown of the John Day reservoir. The Corps' conviction, with regard to these assumptions, dramatically strengthens as one goes from the more detailed appendix to the Report, and then to the summary that concludes with the assumption that there will no longer be hatchery production (see Summary at 22).

The Alaska Department of Fish Game does not believe that the major hatchery activities associated with the Hanford Reach will be altered due to decisions to remove John Day Dam or potential drawdown of its reservoir. This hatchery supplementation work is one of the most successful chinook enhancement efforts on the entire west-coast. If action associated with John Day occurs and John Day mitigation money is lost to this hatchery work, other funding will quickly be identified. If a funding short-fall does occur, something may go away, but it will not be this specific chinook enhancement effort. This hatchery loss assumption by the Corps is an inappropriate approach for evaluating potential benefits to anadromous salmonids through the recovery action of removing John Day Dam or drawdown of its reservoir. The Corp should

Corps of Engineers Response

2. The information presented in the Phase I report is not intended to promote any particular management philosophy. Those who feel that natural production, at any level, is superior to hatchery production will view the results we present differently from those who feel that maximization of potential harvest benefits is more important than other considerations. The Corps' intent is simply to present the relevant scientific facts, together with their uncertainties, in a balanced way to the best of our ability given the information, time, and financial resources available to us.

The Phase I report does not assume anything about the continuation or termination of any particular hatchery production program. There would be no reason for the Corps to continue to finance production of hatchery fall chinook in mitigation for lost natural production that it has successfully restored. Although other entities may elect to assume this financial responsibility, the associated use of funds represents a loss to the Region in terms of the availability of those funds for alternative mitigation or other use, including the production of additional hatchery fish. We, therefore, conclude that recognition of the Corps' likely termination of funding for this mitigation hatchery program under the circumstances of natural production restoration constitutes a real cost to the Region that should be recognized and reported as a potential circumstance associated with the related natural production benefits.

3

provide an analysis of the maximum potential benefits to anadromous fish that does not include the assumption that the most productive hatchery in the Columbia River drainage will be discontinued if a drawdown occurs. A more accurate analysis would leave hatchery production stable and concentrate on likely changes to naturally spawning fish as a result of John Day Dam and Reservoir action alternatives.

Production Rate

According to the Report (see Table 40, page 103), the spawning stock in the portion of the river exposed by drawdown would reach 55,000 fall chinook, a 10-fold increase over the current spawning stock size of 5,500. The existing spawners apparently provide 5,200 fish to fisheries according to the Report, however, the basis of this harvest estimate is neither explained nor documented. These potential 55,000 fall chinook spawners are expected to produce an adult return of 129,000 fish, according to the Report (see Report at 105, Table 41). The Corps uses an average production rate of about 2.35 fish per spawner. This 2.35 assumed production estimate is very low and does not compare well with existing production values. Average observed production rates for other up-river Columbia River fall chinook are as follows (values as listed from PATH 11/16/98 report):

3

- Snake River fall chinook: BY 1964-1991: **5.834,** and
- Hanford Reach fall chinook: BY 1964-1991: **4.881**.

Using the average observed production value for these two stocks, 5.4, instead of the lesser 2.35 value, with the estimated 55,000 spawners would have resulted in an estimate of harvestable production of about 240,000 fish (295,000 total run minus 55,000 escapement), not 74,000 fish. The simple use of an existing average value for production rate rather than use of an unsupported value, changes the potential harvest prediction from 74,000 fall fish to about 240,000 fall fish, a very sizable increase.

Furthermore, if the Corp projection concerning spawning is coupled with existing production values, the number of fish potentially available for harvest goes from an apparent but undocumented baseline of 5,200 fall chinook to a projected level of about 240,000, almost a 50 fold increase. This potential 50 fold increase may be a reasonable maximum number to use in the Phase I Report, rather than the assumed reduction of 50% based on loss of hatchery fish currently used by the Corps.

Transportation

Page 20 of the summary report and page 98 of the Report both imply that any of the drawdown alternatives are not compatible with the juvenile transportation program. While it may be true that deep draft barges could not be used for juvenile salmon transportation in the event of a John Day pool draw down, the Report should be clear that the transportation program could be continued with the use of trucks as occurs to some extent already. Further, it may be that smaller barges might provide another alternative. Taking the approach that any of the alternatives under consideration for John Day Reservoir will unequivocally lead to the cessation of a transportation program is an over-statement.

Corps of Engineers Response

3. The recruits per spawner rate that you quote for Hanford Reach/Yakima River fall chinook (i.e., 4.881) from PATH's 1998 Final Report is an average over many years (i.e., 1964-1991) during which many significant changes to the configuration of the Columbia River hydropower system took place. In addition, there are no documented estimates of natural spawner abundance in the John Day pool. The estimates that the Corps developed of changes in production potential below McNary Dam for alternative John Day drawdown scenarios are based on changes in estimated quantity of potential spawning habitat.

The Corps used a set of assumptions, as explained in the Phase I report, to convert estimates of potential spawning habitat into associated estimates of maximum spawner abundance under current and drawdown conditions. Fecundity, egg-to-smolt survival, and juvenile migrant survival estimates were used to convert the spawner estimates into estimates of smolts recruited to the mouth of the Columbia River.

Subsequent to PATH's 1998 Final Report, they produced a separate report specific to fall chinook salmon (i.e., the PATH Decision Analysis Report for Snake River Fall Chinook). This report looked at the range of smolt-to-adult return (SAR) rates for Upriver Bright fall chinook that occurred from 1981 through 1992. In Section A.3 "Analysis of Smolt-Adult Return Rates for Columbia River Fall Chinook", PATH concluded regarding the "Upper River Bright Run" (i.e., the Hanford Reach/Yakima River fall chinook population) that "SAR (Bonn/Bonn) estimates ranged from 0.37% to 3.29%, averaging 1.83%…"

Rather than the 3.4% SAR rate used by the Corps in the draft Phase I report, the Corps will use in the final report the high-end value in PATH's range of SARs (i.e., 3.29%), which should represent the best available estimate of production potential for these fish under good ocean conditions. In addition, we intend to increase the estimated total number of returns produced by naturally spawning fall chinook by a factor of 1.56 (based on Chapman et al. 1994, as referenced in the Phase I report) to indicate a survival advantage for naturally produced smolts over mitigation hatchery releases. This, in effect, will result in a SAR rate for naturally produced fall chinook of 5.13%.

provide an analysis of the maximum potential benefits to anadromous fish that does not include the assumption that the most productive hatchery in the Columbia River drainage will be discontinued if a drawdown occurs. A more accurate analysis would leave hatchery production stable and concentrate on likely changes to naturally spawning fish as a result of John Day Dam and Reservoir action alternatives.

Production Rate

3

According to the Report (see Table 40, page 103), the spawning stock in the portion of the river exposed by drawdown would reach 55,000 fall chinook, a 10-fold increase over the current spawning stock size of 5,500. The existing spawners apparently provide 5,200 fish to fisheries according to the Report, however, the basis of this harvest estimate is neither explained nor documented. These potential 55,000 fall chinook spawners are expected to produce an adult return of 129,000 fish, according to the Report (see Report at 105, Table 41). The Corps uses an average production rate of about 2.35 fish per spawner. This 2.35 assumed production estimate is very low and does not compare well with existing production values. Average observed production rates for other up-river Columbia River fall chinook are as follows (values as listed from PATH 11/16/98 report):

- Snake River fall chinook: BY 1964-1991: **5.834,** and
- Hanford Reach fall chinook: BY 1964-1991: **4.881**.

3 cont.

Using the average observed production value for these two stocks, 5.4, instead of the lesser 2.35 value, with the estimated 55,000 spawners would have resulted in an estimate of harvestable production of about 240,000 fish (295,000 total run minus 55,000 escapement), not 74,000 fish. The simple use of an existing average value for production rate rather than use of an unsupported value, changes the potential harvest prediction from 74,000 fall fish to about 240,000 fall fish, a very sizable increase.

Furthermore, if the Corp projection concerning spawning is coupled with existing production values, the number of fish potentially available for harvest goes from an apparent but undocumented baseline of 5,200 fall chinook to a projected level of about 240,000, almost a 50 fold increase. This potential 50 fold increase may be a reasonable maximum number to use in the Phase I Report, rather than the assumed reduction of 50% based on loss of hatchery fish currently used by the Corps.

Transportation

4

Page 20 of the summary report and page 98 of the Report both imply that any of the drawdown alternatives are not compatible with the juvenile transportation program. While it may be true that deep draft barges could not be used for juvenile salmon transportation in the event of a John Day pool draw down, the Report should be clear that the transportation program could be continued with the use of trucks as occurs to some extent already. Further, it may be that smaller barges might provide another alternative. Taking the approach that any of the alternatives under consideration for John Day Reservoir will unequivocally lead to the cessation of a transportation program is an over-statement.

Corps of Engineers Response

3. (continued)

The effect of these changes regarding potential increases in fall chinook production below McNary Dam under drawdown to natural river channel conditions is that a potential maximum 55,000 spawners could, under conditions of good survival in the ocean, produce an estimated 194,500 total returns. This would include a harvestable surplus of 139,500 fish. This figure is only slightly less than the sum (i.e., 148,600 fish) of the maximum potential harvestable surplus of fall chinook produced below McNary Dam under current reservoir conditions (10,600 fish) plus the estimated production of harvestable fish from the associated mitigation hatchery program (138,000 fish), under conditions of good ocean survival.

4. Barge navigation through the 76-mile John Day reach under drawdown to natural river conditions would be difficult and dangerous during the spring even with the use of relatively small craft because of the currents that would be encountered. During summer and fall, low flow levels would also result in difficult and dangerous operating conditions. Development of reliable transportation by barge under these conditions is not practical. However, the Phase I report has been edited to indicate that transportation of Snake River fall chinook salmon, which occurs primarily by truck between late June and October, could continue under John Day drawdown conditions to the extent that collection of juveniles in the Snake River continued.

Modeling

5 The Corps relied extensively upon biological life cycle modeling to assess potential benefits to Columbia and Snake River salmon. The modeling analysis itself is provided as attachment F (80 pages) to the Biological/Environmental Technical Appendix, Aquatic Resources Section. The model is complex and difficult to understand and to review, particularly given the short time provided for review. There may be only 6 to 10 technical fishery staff in the country that can readily review the modeling analysis in such a short time. These would be people who are actively modeling these types of data for various fishery agencies. Other reviewers have to rely on the Corps' own description of results of modeling included in the main Report and in the summary report. The model, assumptions, and data used should be reviewed by peers and their analysis presented.

6 With that said, on the surface at least, it appears the Corps failed to adequately identify major results of some of the modeling work. For instance, the *Summary* indicates that benefits to ESA listed stocks are minor. However, modeling indicates the Snake River fall chinook salmon stock would increase to 6,179 fish with drawdown if low fish transportation effectiveness is assumed (see Summary report at 21). The Report should have pointed out that if that number is reached, the fall chinook stock would exceed the recovery goal of 2,500 that was established by the National Marine Fisheries Service in 1995 ("Proposed Recovery Plan for Snake Salmon," March 1995, at iv-17 and be eligible for ESA de-listing, hardly a **minor** result.

The extensive reliance on modeling and assumptions concerning the effectiveness of transportation for determining the potential benefits of drawdown is a serious flaw in the analytical approach.

Such an analytic approach begs several key questions including:

1. What type of survival benefits might be expected with significant decreases in water temperatures?
2. What type of survival benefits might be expected with significant increases in smolt down-river migration rates?
3. What type of survival benefits might be associated with reduced levels of predation?

Predation

The question of predation should have been more fully analyzed and approached in a direct manner instead of being minimized. The Report, on page 97, states that survival of fall chinook would increase by 2 or 3 percent under alternatives 1 and 3 due to a change in predator losses. However, the Report provides neither an explanation of how these estimates were derived nor the basis for them. The Report suggests that travel time with drawdown would be decreased by 2 to 3 days and maybe even more for fall chinook. The Report also provides estimates of predator population levels in John Day reservoir: 85,000 northern pikeminnow, 32,000 to 38,000 smallmouth bass, and 15,000 walleye.

Corps of Engineers Response

5. It is unfortunate that system modeling within the Columbia River Basin is so complex. Unfortunately, this is the case. Simplistic production models fail to adequately consider the enormous volume of research and adaptive management that has taken place in the basin to date. The Regional PATH group is a peer group of biologists that was developed to work cooperatively to review and analyze data relevant to ESA recovery concerns in the basin. We have used the analytical approaches developed by this group in our assessment of the potential biological benefits associated with drawdown of the John Day Reservoir. Our work was reviewed, initially, by the National Marine Fisheries Service, which confirmed the appropriateness of our approach and the reasonableness of the associated results. PATH has provided extensive documentation of their methods and work.

6. The potential increase of 6,179 Snake River fall chinook spawners at equilibrium population level under John Day drawdown to natural river channel without Snake River Drawdown assumes low fish transportation effectiveness. Under this assumption, termination of transportation alone, without John Day drawdown, would increase Snake River fall chinook returns by 5,631 spawners at equilibrium population level. The net increase in Snake River fall chinook resulting from John Day drawdown is 548 spawners at equilibrium population level. Since this figure assumes no impacts of harvest, it is not directly comparable to the NMFS recovery goal that you quote of 2,500 additional returns to the Snake River after harvest. The PATH analysis approach indicated that John Day drawdown to natural river channel provided the highest level of benefits among the drawdown alternatives considered, and that it increased the probability of recovery for Snake River fall chinook by only four percentage points; a minor benefit.

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Corps of Engineers Response

7. There are clearly arguments for and against any analytical approach that might be taken to estimate potential biological benefits that might accrue from drawdown of John Day Reservoir. A life-cycle modeling approach was the best means by which the myriad of complex relationships among chinook life history stages and associated environmental circumstances could be integrated so that results could be reasonably compared. The Corps elected to adopt the life-cycle modeling analytical approach developed as a result of the Regional PATH planning effort, which focused on the assessment of potential biological benefits associated with drawdown of mainstem Snake River and Columbia River dams. This approach included consideration of the effects of transportation.

The results obtained from the PATH analytical approach were sensitive to assumptions regarding effects of transportation. Benefits of drawdown were maximized under assumptions of low survival rates for transported fish. In an effort to estimate the maximum potential biological benefits from drawdown, the Corps made modeling assumptions consistent with maximizing those benefits. To provide a balanced perspective, it was then incumbent upon the Corps to explain the approach that it had taken, and to present the results in light of the assumptions that had been made.

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Corps of Engineers Response

8. The Water Quality Section (under the Engineering and Technical Appendix, Volume 2) of the Phase I report indicates that the major effect of impoundment by John Day Dam on historic water temperatures in the John Day reach was to delay warming in the spring and cooling in the fall. Because of the relatively rapid exchange rate for the reservoir's volume, there is very little change (e.g., 3° to 5°C) in temperature with depth, even during summer. An analysis of PIT tag data by Skalski and Townsend (Attachment D to the Biological/Environmental Technical Appendix, Aquatic Resources Section of the Phase I report) for juvenile fish passing through the John Day reach showed no correlation between juvenile migrant survival probabilities and associated river operations or conditions, including water temperature, in 23 of 24 independent analyses during 1998. The Phase I report concludes that the effects of drawdown on water temperature are expected to be minimal and of little benefit to aquatic life. It points out that the possibility of higher annual peak temperatures may actually be detrimental.

Migration rates for smolts are anticipated to increase under drawdown conditions by two to three days for Snake River spring/summer and fall chinook, respectively. While no relationship between smolt travel time and survival rate has yet been documented, assumptions associated with the PATH analysis approach (i.e., based on reduced losses to predation) indicated that juvenile survival might increase by as much as 6% and 2% for spring/summer and fall chinook, respectively, in response to the estimated decrease in travel time.

Benefits that might accrue as a result of reduced predation on juvenile salmonids under drawdown conditions are unknown. Analyses of likely changes in populations of important predators suggested that northern pikeminnow, smallmouth bass, and channel catfish are likely to re-distribute in response to habitat changes, but are not likely to decrease in abundance. Walleye, and perhaps smallmouth bass, may decrease in abundance. A recent report by Zimmerman and Ward in Transactions of the American Fisheries Society (Volume 128, Number 6, November 1999, pages 995-1007) indicated loss of juvenile salmonids to predation by northern pikeminnow, the most important predatory fish in the mainstem Columbia River, was much higher in the free-flowing reaches of the lower Columbia River below Bonneville Dam than it was in John Day Reservoir from 1990-1996.

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Corps of Engineers Response

9. The estimated increase in survival for Snake River fall chinook was determined based on the Regionally developed PATH life-cycle modeling analysis approach, assuming that loss to predation decreases with reduced travel time and lower water temperatures. While the linear model of loss to predation that you suggest (i.e., estimated abundance of all predators x mean smolts consumed per predator x estimated average turnover rate) is attractive in terms of its simplicity, it fails to consider the extensive body of research regarding losses to predation that has been conducted in the Columbia River Basin. Your calculations results in a gross overestimate of potential losses to predation.

Consider that: 1) smolts are incidental and relatively unimportant (i.e., much less than 1-2 smolts per day) in the diets of most major Columbia River predatory fishes, comprising only approximately 13% of walleye, 9% of smallmouth bass, and less than 1% of channel catfish diets in the John Day pool (Vigg et al. 1991 in Transactions No. 120); 2) Northern pikeminnow is the most important smolt predator in the Columbia, with smolts comprising approximately 78% of their diet in the John Day pool (Vigg et al. 1991); 3) losses to pikeminnow are greatest in the free-flowing reaches of the lower Columbia River below Bonneville Dam (Zimmerman and Ward 1999 in Transactions No. 128); and 4) nevertheless, the Corps has used the PATH modeling approach and has assumed that losses to predation will decrease with decreased smolt travel time and water temperatures. The Corps believes that this assumption and analytical approach results in a relatively liberal estimate of potential benefits from reduced predation that might result from John Day drawdown.

9 cont.

At water temperatures in place during smolt migrations, digestion of smolt would occur in about 12 hours; hence, in a three-day time period, 6 stomach turnovers would occur. If these predators, on the average, only have 1 or 2 salmon smolt in their stomachs upon examination, an estimate of the "savings" from predators by drawdown would be from 800,000 to 1,600,000 smolt (135,000 predators x 1 or 2 smolt per stomach x 6 turnovers in stomach contents). Given the magnitude of potential "savings" due to the large number of predators and potential minimization of the smolt being susceptible to such predation due to faster travel times, it is hard to imagine that survival would only increase by 2 or 3 percent. If reviewers are to accept such estimates, the Corps needs to provide the basis for them and details of the calculations. This topic is certainly worth more than the 5 lines of text provided on page 97 of the Report because it is one of the central reasons that informed citizens and agencies have called for the study of John Day drawdown.

Conclusion

10

The existing Report is inadequate in assessing potential gains to be made for listed and non-listed stocks of salmon from the habitat improvements of lower water temperatures, decreased travel times, and reduced predation. These technical issues are central to the discussion of potential benefits to anadromous salmon of drawdown of John Day Reservoir. These are the types of benefits that proponents of drawdown have been suggesting would occur since the idea was developed in the early 1990's. This technical document, which is intended to identify potential benefits and costs associated with drawdown as a recovery tool for ESA listed salmonid stocks, has all but ignored the potential benefits. Instead the document presents biased forecasts concerning potential benefits to fishery users based upon the Corps' conjecture of future hatchery activities.

The *Recommendations* section of the Report, suggests no need for Phase II of the study based on several assumptions, including: (1) drawdown would contribute little to survival and recovery of listed Snake River stocks; and, (2) a forecasted decrease in the population level of Hanford Reach chinook.

The Alaska Department of Fish and Game believes that the potential fish and fishery benefits are greatly underestimated. Further, ADF&G believes the analytic approach taken with regard to potential benefits to ESA listed stocks and non-listed stocks was faulty and is based on unsubstantiated assumptions that completely underestimated potential fishery benefits. Unless these shortcomings in the Report can be completely resolved within this Phase I Report, the Phase II study should be required of the Corps.

Corps of Engineers Response

10. The Phase I reconnaissance-level study presents the currently available information and analyses regarding potential changes in water temperature, decreases in smolt travel time, and potential changes in predator populations along with an assessment of their potential biological ramifications.

While it is true that many of the assumptions used by the Corps in performing analyses under the Phase I study are unsubstantiated, in each case the Corps elected to use those assumptions that would result in maximizing potential biological benefits from drawdown of John Day Reservoir. For example, we assumed that survival of juvenile salmon migrants would increase with decreased travel time as a result of improved environmental conditions and decreased losses to predation, even though the relationship between travel time and juvenile survival has not been substantiated, analysis of potential changes in water temperature indicated that they were unlikely to change significantly, and analysis of potential changes in predator abundance indicated little change.

The Corps was directed by Congress to conduct a one-year reconnaissance study to summarize existing information pertinent to the potential benefits, impacts, and costs associated with drawdown of the John Day Reservoir so that this information could be used to determine if further study was warranted. We believe that the information provided in the Phase I report regarding maximum potential biological benefits for ESA listed anadromous fish species together with the associated minimized estimates of potential environmental impacts and costs is sufficient to permit Congress to make a decision regarding the need for further study.

JOHN A. KITZHABER, M.D.
GOVERNOR

May 1, 2000

Colonel Randall J. Butler, Division Engineer
U.S. Army Corps of Engineers -- Portland Division
Attention: John Day Drawdown Study
PO Box 2946
Portland OR 97208-2496

Dear Colonel Butler:

I am writing to convey the position of the State of Oregon on the Army Corps of Engineers' John Day Drawdown Phase I Study, and particularly on the Corps' conclusion that additional analysis in a Phase II study is not warranted.

This position summarizes the detailed technical and policy comments from various state agencies, which are enclosed. The agency comments cover a wide array of issues, reflecting each agency's distinct mission and authority. I have been a strong advocate of the federal government reconciling its agencies' position and speaking with one voice on matters of regional significance, and I take seriously my responsibility as governor to see that Oregon speaks with equal clarity.

As NMFS suggested when it required the Corps to conduct the Phase I study as part of its 1995 Biological Opinion, the John Day drawdown has the real potential to greatly improve the abundance and distribution of salmon populations in the Columbia Basin. Thus, this type of study can greatly inform our efforts to reduce hydrosystem-induced salmon mortality, as part of our comprehensive effort to reduce mortality across all the salmon life stages.

The Phase I study approaches environmental decision-making through a weighing of the costs and benefits associated with a particular action. The Phase I study just completed assesses information regarding the biological benefits and economic and social costs associated with four possible configurations for drawing down the reservoir behind the John Day dam. While legitimate, this study approach is highly dependent on the quality and quantity of the input data. If the data is lacking, the weighing process will be skewed.

The issue of drawdowns generally, and of John Day drawdown in particular, is very controversial, with both strong proponents and opponents. Unfortunately, the Phase I study contains deficiencies and limitations in the data and conclusions that, in our judgment, preclude it from being determinative on the question of the John Day drawdown. The State of Oregon therefore recommends that the Corps proceed to Phase II, where these deficiencies and limitations can and should be addressed.

1 The first key deficiency relates to the data used in Phase I regarding the economic and social impacts of a John Day drawdown. The data is geared toward assessing impacts on the regional level, but lacks sufficient specificity of the impacts that could occur on a state and local level. For example, the study should pay particular attention to impacts on local ports and irrigators and on impacts on the transportation infrastructure caused by shifting modes of transportation and changes in flow regimes. To correct this deficiency in a Phase II study, we urge the Corps to provide greater opportunity for direct input from knowledgeable state and local entities, including the Oregon Department of Economic and Community Development, the Oregon Department of Transportation, and local ports and irrigators.

2 The second deficiency pertains to the assessment of the biological benefits of a John Day drawdown. While the Phase I study finds that a drawdown could increase Snake River fall Chinook returns by up to 50,000 spawners, this substantial biological benefit is mitigated by the study's determination that a drawdown would negatively impact the currently healthy population of Hanford Reach upriver bright fall Chinook. This latter determination is contrary to the analysis of the Oregon Department of Fish and Wildlife (ODFW), and also appears to be at odds with the analysis offered in the Independent Scientific Advisory Board's "Return to the River" report. To correct this deficiency in a Phase II study, we urge the Corps to work more collaboratively with ODFW, as well with the federal fish management agencies. We would also urge that all scientific data and conclusions be subjected to independent peer review, which has not been the case with the Phase I study.

3 The third deficiency pertains to the short-term and long-term effects of a John Day drawdown on water quality. As you are aware, the Columbia River is in violation of Oregon's water quality standards for temperature and total dissolved gas. The Phase I study acknowledges that a drawdown will reduce total dissolved gases downstream of the John Day reach, increase water velocities, and shift water temperature regimes towards pre-impoundment conditions. However, the Phase I study fails to quantify the contribution these long-term benefits could make toward attainment of state water quality standards. To correct this deficiency, the Corps should use the opportunity afforded by a Phase II study to take a more comprehensive look at this critical issue.

4 The most significant limitation of the Phase I study is that, like the dam removal action evaluated in the Corps' recently released draft Environmental Impact Statement, there is no analysis of how the action of drawing down the John Day reservoir would relate to the larger salmon recovery effort.

Corps of Engineers Response

1. Before a decision was made to lower the John Day Reservoir more detailed studies on specific regional and local impacts would be conducted.

2. The Corps is not aware of an independent analysis of potential effects on Upriver Bright fall chinook salmon resulting from drawdown of John Day Dam that has been completed by Oregon Department of Fish and Wildlife or by any other entity outside of the Corps and the Regional PATH group. This includes the authors of the reports cited.

None of the documents sited provides a study of the potential biological benefits or environmental impacts and costs associated with John Day drawdown alternatives, but merely hypothesizes that benefits of drawdown might be substantial. As a result, Congress directed the Corps to perform a study to determine likely benefits, environmental impacts, and costs associated with John Day drawdown alternatives. Phase I of the Corps' study is a one-year reconnaissance-level investigation from which Congress can determine whether additional study is warranted.

3. The Water Quality Section (under the Engineering and Technical Appendix, Volume 2) of the Phase I report indicates that the major effect of impoundment by John Day Dam on historic water temperatures in the John Day reach was to delay warming in the spring and cooling in the fall. Because of the relatively rapid exchange rate for the reservoir's volume, there is very little change (e.g., 3° to 5°C) in temperature with depth, even during summer. An analysis of PIT tag data by Skalski and Townsend (Attachment D to the Biological/Environmental Technical Appendix, Aquatic Resources Section of the Phase I report) for juvenile fish passing through the John Day reach showed no correlation between juvenile migrant survival probabilities and associated river operations or conditions, including water temperature, in 23 of 24 independent analyses during 1998. The Phase I report concludes that the effects of drawdown on water temperature are expected to be minimal and of little benefit to aquatic life. It points out that the possibility of higher annual peak temperatures may actually be detrimental.

The Corps, in cooperation with the region, is looking at the issue of total dissolved gas throughout the system. A Phase II study is not necessary to address this concern.

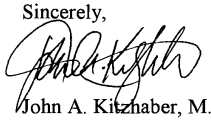
4 cont.

For example, the biological benefits of a John Day drawdown, considered in isolation, may appear to militate against such an action. But these same biological benefits might support a drawdown decision if the benefits are deemed essential to achieving overall recovery. Similarly, the economic costs may appear large when considered in isolation, but the challenge of dealing with those costs may be more reasonable if implementing a drawdown, as part of an overall recovery strategy, resulted in the relaxation or abandonment of actions currently being implemented or considered that also cause significant economic impacts. To correct this limitation, we urge that the Corps move forward with the Phase II study as part of the larger "All-H" analyses currently underway.

In conclusion, I wish to make it clear that Oregon does not, at this time, support implementation of John Day drawdown. However, I remain committed to ensuring that we have both the information and the political will necessary to make a decision in the near future that is both scientific and balanced. A properly scoped and executed Phase II study will be an essential tool to achieving this outcome.

Thank you for the opportunity to provide these comments.

Sincerely,



John A. Kitzhaber, M.D.

JAK/NR/sm

Corps of Engineers Response

4. The National Marine Fisheries Services Biological Opinion and the Federal Caucus All-H paper are scheduled to be finalized in the summer/fall of 2000.

MEMO: April 27, 2000

TO: Governor John A. Kitzhaber, M.D.

FROM: Oregon Economic and Community Development Commission by JMcG

SUBJECT: Army Corps of Engineer's John Day Drawdown Phase I Study Comments

The Oregon Economic and Community Development Commission has heard and understands compelling testimony received from Oregon citizens regarding the severe community and statewide economic impacts likely to result should any drawdown on the John Day Reservoir occur. We are convinced that the regional economic dislocation from drawdown would be severe.

The Commission recognizes the importance of and necessity for balancing economic, social (community), and environmental values when considering these issues of primary importance to our State.

On April 17, 2000, the Oregon Economic and Community Development Commission passed a motion supporting the Corp's recommendation for no further study on the John Day Drawdown. The Commission Chair Brett Wilcox declared a conflict of interest and abstained from this motion.

5 Should environmental concerns be great enough to cause further study, there needs to be much more detailed analysis of the effects on the local economies of the cities along the reservoir and those industries that rely on the river to transport their goods. The Regional Economic Development studies in the John Day Drawdown Phase I Study indicated there would be long-term loss in incomes and jobs to the residents of the area. However, this study was not adequate to fully measure the economic impacts of any drawdown of the John Day Reservoir. Since economic sustainability is a co-equal value, any study of drawdown should also include the development of mitigation strategies supporting the transition of local communities to alternative means of sustainable prosperity.

In addition, more detailed study would need to be made of the costs and economic impacts of increased truck and rail traffic on the region and the resulting impacts to the lower Columbia River ports and industries.

5. Before a decision was made to lower the John Day reservoir, greater detail regarding specific regional and local impacts, as well as specific information related to the potential loss of navigation, would be developed.

Comments of the Oregon Water Resources Department
On the
John Day Pool Drawdown Phase I Study

The Corps of Engineers Phase 1 study of John Day Pool drawdown identifies significant water supply impacts in virtually every sector of the regional economy. It is difficult to meaningfully evaluate the merits of drawdown, or its impacts on regional water supply, without the context of a comprehensive salmon recovery plan. But one thing is clear -- if drawdown is to remain on the table as a potential element of salmon recovery, the effects on water supply must be studied further, better understood, and adequately addressed before any drawdown proposal is implemented. That further study should include, at a minimum, a comprehensive study of the region's groundwater supply. Phase I of the study is not sufficient for that purpose.

The summary of the study observes that "[o]wners of shallow wells may need to drill deeper wells in order to place the well screen below post-drawdown reservoir water levels. This is not an option for users of the basalt aquifer in Oregon because the Oregon Water Resources Department has halted further drilling and withdrawal." (Summary, Salmon Recovery through John Day Reservoir, January 2000, p. 14.) The statement may refer to the existence of four critical groundwater areas in the area of the John Day pool. The critical groundwater areas are designated under Oregon law in order to reduce water use for the purpose of stabilizing declining water levels. Outside the critical areas, additional wells may be drilled and new permits issued to accommodate water level declines caused by lowering the pool level. Within the critical areas, no new permits may be issued, but well deepening and construction of replacement wells are allowed. It should be noted, however, that one of the purposes of critical area regulation is to stabilize water levels so deepening and increased power consumption can be avoided.

6

The precarious supply from the basalts near the John Day Pool indicates that more study is needed if drawdown is to be considered further for salmon recovery. As the report concludes, some basalt aquifers are recharged by the John Day Pool. An example of this is seen in the aquifer tapped by Arlington's wells. It responds readily to lake levels -- so readily as to suggest that water, in fact, is entering the aquifer from the lake. In other areas, water levels in the basalts are high enough to prevent water from entering from the lake. In these areas, lake levels may be holding aquifer levels artificially high through a hydraulic damming process. Ground water from the basalts flows generally northward or northwestward to discharge into the Columbia. The rate of discharge is not known, but is likely relatively small. By raising the head behind the John Day Dam, the gradient in the discharge area is reduced. In order to discharge, the water level in the aquifer must then rise to re-establish the gradient necessary to discharge the aquifer's water. The result is increased storage in the aquifer.

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6. Concur. Effects of the lowering of reservoir head will impact the basalt aquifers in the pool area. It is acknowledged that shallow well owners will likely need to find alternative water sources in the protected basalt aquifer region. Restorative measures will require site specific plans that will follow all applicable state laws and regulation. The extent that groundwater behavior will be impacted in each area will require a more comprehensive investigation that that found in the Phase I tabulation and estimate of water supplies that may be affected. Determination of aquifer flow patterns and hydrologic behavior after reservoir drawdown will require a significant effort from all state water resource agencies and federal agencies involved – which is beyond the Phase I scope and level of effort.

Current demands for irrigation water from the aquifer benefit from this increased storage. Regulation of water use from the basalt is creating equilibrium between the use and supply at water levels that are elevated by this hydraulic damming. Lowering the head behind the dam will result in an increased ground water gradient near the river. That, in turn, will cause an increased rate of discharge into the river. Whether this increase will be significant is unknown, because the efficiency of the hydraulic connection with the river is unknown—though it is suspected to be poor. The result will likely be a lowering of the head in the basalt aquifer and potentially re-initiation of water level declines in the critical ground water areas, which could lead to additional regulation of water use to stabilize water levels. But neither the OWRD, nor the Corps, nor any other entity of which we are aware has sufficient information at this point to predict the outcome with any certainty.

Given the extent to which the region currently relies on both the John Day Pool and surrounding groundwater supplies to support existing development, the hydrologic effects of drawdown must be better understood, and a plan developed to address those effects, if drawdown is to remain on the table. The Phase I study is clearly not sufficient for that purpose.

Comments of the Oregon Department of Fish and Wildlife
On the John Day Drawdown Phase I Study

ODFW recommends that the Corps proceed with Phase II of the John Day drawdown study. We believe that substantial biological benefits may accrue from drawdown, which may be a key component for recovery of listed ESUs. The increased natural production associated with John Day drawdown alone would greatly increase the abundance and distribution of Columbia Basin salmon. John Day reservoir is the longest impounded reach, with the 2nd highest predator density that anadromous salmonids must negotiate. Improvements in smolt migration conditions would benefit all salmonid populations upstream from John Day dam, including seven ESA listed ESUs. In addition to salmonids, resident fish populations and sturgeon populations would also benefit from drawdown. The potential benefits to these resources warrant additional study of the alternatives, therefore, Phase II should proceed.

In general, the John Day Drawdown Phase I Study report was inadequate in assessing the effects of drawdown on aquatic resources, inaccurate in many analyses, and presented information selectively in order to bias the conclusions. Given the shortcommings of the aquatic resources information, it seems unlikely that the economic models were operating with good data.

The report was difficult to read, with information on a given topic often covered in three or more individual reports, which were not cross-referenced. Once the different sources were tracked down, the information often conflicted. Additional internal review would have improved the final product.

Specific Comments

7 Section 7.17.1 and Aquatic Resources Appendix Section 6.1.2.2. The statement that drawdown would result in the loss of backwater habitat currently used by juvenile upriver bright fall chinook for rearing resulting in decreased abundance and survival (Section 7.17.1) is speculative, and not supported by an analysis. There is evidence to the contrary cited in the report, which should be the working assumption. In fact, it appears that survival of the juveniles would increase, which should result in an increase in adult abundance. Section 7.17.1.2 that states "Backwaters, off-channel ponds, and nearshore stream margins with low water velocities may constitute the best habitat conditions for rearing juveniles." This statement is in direct conflict with Attachment C page 61of the Aquatic Resources Appendix which states: "However, although these habitats are currently used for rearing by juvenile anadromous salmonids, the original river channel and associated shoreline "natural" habitat would provide superior rearing habitat." In addition to the higher quality habitat provided by drawdown conditions, Section 7.17.1.3 states that the quantity of habitat would also probably increase.

8 Section 1.17.1.5 and Aquatic Resources Appendix Section 8.3. In addition to the benefits from rearing areas, other effects of drawdown would be beneficial to upriver bright fall chinook. For example, Section 8.3 in the Aquatic Resources Appendix indicates that benefits from reduced predation "may be considerable" for fall chinook. The section concludes with a statement that

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7. The statement that drawdown would result in the loss of habitat currently used by juvenile fall chinook salmon for rearing is not speculative. Use of this habitat, which would no longer be inundated under drawdown conditions, was documented by means of field survey results, as described in the Phase I report. What is unknown is the relative importance of this habitat to the current productivity of fall chinook, and the degree to which the habitat might be replaced with alternative suitable habitat under drawdown conditions.

The fact that loss of the habitat currently in use by rearing juvenile fall chinook salmon could potentially be harmful to the productivity of this stock is obvious. Loss of this habitat would be harmful to some undetermined extent if it were not replaced under drawdown conditions. Although cursory modeling results based solely on criteria of flow velocity, depth, and distance from shore suggested that currently available rearing habitat might be replaced under drawdown conditions, these results do not consider many other important aspects such as other important habitat characteristics, the effects of accumulated silt and turbidity, and the continuation of natural hydrograph alteration that may delay or limit recovery of suitable habitat under drawdown conditions.

Please keep in mind that the Corps is not saying that current conditions for juvenile fall chinook rearing in the John Day pool are better than anything that may develop under drawdown conditions. We are saying that we do not know; and therefore, it is concluded that there is a risk that chinook rearing habitat could be significantly impacted by drawdown. The use of slackwater and backwater areas for juvenile rearing by ocean-type chinook salmon in estuaries and reservoirs is well documented, as cited included in the Phase I report. While it is true that "the original river channel and associated shoreline natural habitat would provide superior rearing habitat", as you quote from Attachment C on page 61, there is no guarantee that similar habitat will be restored under drawdown conditions, nor is there good information regarding how long it may take for it to be restored, if it can be.

Nevertheless, in the assessment of potential biological benefits resulting from drawdown under the Phase I study, the Corps has assumed that rearing habitat would not limit fall chinook production, that all potential spawning (and rearing) habitat would be restored under drawdown conditions, and that this spawning habitat would be fully seeded. Thus, potential benefits from drawdown on fall chinook production were maximized.

quantification of the anticipated reduction is not possible given the available information. However, in Section 7.17.1.5, estimates of 2% and 3% survival increases are assumed. It is unclear where the values were derived from, and if 2%-3% is deemed "considerable". Since travel time for fall chinook would be decreased by 33%-50% (Section 7.17.1.4), and northern pikeminnow and smallmouth bass would have less long-term access to juvenile salmonids (Aquatic Resources Appendix Section 8.3) it seems likely that the survival benefits could be higher than 2%-3%.

8 cont.

Section 7.17.3 and Summary page 21. Given the points above, it does not seem logical that other stocks would not benefit from drawdown. The report states that upper Columbia spring chinook would likely increase, but Snake River spring chinook would not benefit. It seems more logical that other stocks would benefit from the superior rearing environment, aquatic invertebrate assemblage, reduced travel time, and reduced predation associated with drawdown conditions. No mention was made of likely benefits to steelhead from the Upper and Middle Columbia ESUs, which should be considered as well.

9

Section 7.17.4.2 and Aquatic Resources Appendix Section 7.3.2.1. The assumption that the existing conditions support 5,500 spawners can not be substantiated; it is based on an estimate of available habitat with no verification of habitat quality or observation actual spawners. The estimate is based on depth and velocity only, with no information on substrate type. Only one live chinook and no redds or dead chinook were observed during seven spawning ground surveys in the John Day reach in between 29 October and 11 December 1998. No fish or redds were observed during biweekly surveys in 1999. Therefore, the current contribution of fall chinook from the John Day reach should be considered negligible.

10

Section 7.17.5 and Aquatic Resources Appendix Section 7.3.4. The harvestable production calculation for wild spawners is also questionable. The smolt-to-adult return (SAR) rate used to estimate adult returns was the same for hatchery and wild fall chinook. There is evidence that wild SAR rates are substantially higher than that of hatchery fish. PATH (1999) reported SARs for Lyons Ferry hatchery fall chinook ranging from 0.015% to 0.26%, while SARs from wild Snake River fall chinook were consistantly greater than 0.5%, depending on the methodology and assumptions used. The use of differential SAR rates would increase the potential harvest benefits realized from wild spawning populations relative to the current mitigation hatchery production.

An analysis by TAC (1992) estimated that the total production (ocean and in-river harvest and spawning escapement) from the natural spawning fall chinook in the John Day reach ranged from 93,000 to 121,000 between 1958 and 1967. They chose the mid-point of 107,000 to represent the total production that should be mitigated for based on the 30,000 annual spawning escapement. If the reach could support 55,000 natural spawners (Section 7.17.4.2), then surplus production should be about 141,000, not 74,000 (Section 7.17.5). If you assume that improvements in fish passage downstream from John Day Dam over the last 30 years have increased SAR rates, then the expected returns from 55,000 spawners would be even greater.

An analysis of recent information from Hanford Reach fall chinook indicate a similar rate of production. Based on the natural spawning escapement and subsequent returns for the 1990-

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8. The estimates of benefits to fall chinook salmon above McNary Dam that you quote (i.e., 2% to 3% potential in-river survival increase) are based on results from the Regionally developed PATH modeling approach. These results assume that loss of juvenile migrants to predation would be reduced.

9. Upper Columbia spring chinook salmon are not collected and transported to below Bonneville Dam like other chinook and steelhead stocks. Their potential increase in abundance under drawdown conditions is a direct effect of increased in-river survival under drawdown conditions, assuming that decreased travel time results in increased survival rate. The higher survival rate of juvenile salmonids that are transported to below Bonneville Dam over those that pass in-river, even under the most conservative (i.e., drawdown benefit maximizing) assumptions of post-transport survival, result in higher returns of adults from transported fish. Drawdown would effect fish transportation. The benefits of increased in-river survival for transported stocks do not outweigh the impacts of reduced overall survival resulting from lost or reduced transportation.

The Phase I reconnaissance-level study was based on an assessment of currently available information. Adequate information was not available for assessment of potential benefits or impacts to all potentially affected species and stocks, including steelhead. However, this information is not necessary to meet the goals of the Phase I study.

10. We concur that no information is available substantiating current use of potential spawning habitat by fall chinook in the John Day reach below McNary Dam. We also concur that the assessment we were able to make regarding potential change in spawning habitat under drawdown conditions, and associated potential change in production of fall chinook, was very cursory. However, the assumptions we made regarding current and future fall chinook production potential were consistent, given our estimates of current and future availability of potential spawning habitat. In both cases, we assumed that spawning was limiting fall chinook production and that the available potential habitat could, and would, be fully seeded. An additional assumption under drawdown conditions was that the increased potential spawning habitat would be fully recovered to usable condition. All of these assumptions have the effect of maximizing the assessment of potential benefits for Upriver Bright fall chinook that might result from John Day drawdown. While it is true that there may currently be little or no natural production of fall chinook in the John Day reach, the same may be true under drawdown conditions.

quantification of the anticipated reduction is not possible given the available information. However, in Section 7.17.1.5, estimates of 2% and 3% survival increases are assumed. It is unclear where the values were derived from, and if 2%-3% is deemed "considerable". Since travel time for fall chinook would be decreased by 33%-50% (Section 7.17.1.4), and northern pikeminnow and smallmouth bass would have less long-term access to juvenile salmonids (Aquatic Resources Appendix Section 8.3) it seems likely that the survival benefits could be higher than 2%-3%.

Section 7.17.3 and Summary page 21. Given the points above, it does not seem logical that other stocks would not benefit from drawdown. The report states that upper Columbia spring chinook would likely increase, but Snake River spring chinook would not benefit. It seems more logical that other stocks would benefit from the superior rearing environment, aquatic invertebrate assemblage, reduced travel time, and reduced predation associated with drawdown conditions. No mention was made of likely benefits to steelhead from the Upper and Middle Columbia ESUs, which should be considered as well.

Section 7.17.4.2 and Aquatic Resources Appendix Section 7.3.2.1. The assumption that the existing conditions support 5,500 spawners can not be substantiated; it is based on an estimate of available habitat with no verification of habitat quality or observation actual spawners. The estimate is based on depth and velocity only, with no information on substrate type. Only one live chinook and no redds or dead chinook were observed during seven spawning ground surveys in the John Day reach in between 29 October and 11 December 1998. No fish or redds were observed during biweekly surveys in 1999. Therefore, the current contribution of fall chinook from the John Day reach should be considered negligible.

Section 7.17.5 and Aquatic Resources Appendix Section 7.3.4. The harvestable production calculation for wild spawners is also questionable. The smolt-to-adult return (SAR) rate used to estimate adult returns was the same for hatchery and wild fall chinook. There is evidence that wild SAR rates are substantially higher than that of hatchery fish. PATH (1999) reported SARs for Lyons Ferry hatchery fall chinook ranging from 0.015% to 0.26%, while SARs from wild Snake River fall chinook were consistantly greater than 0.5%, depending on the methodology and assumptions used. The use of differential SAR rates would increase the potential harvest benefits realized from wild spawning populations relative to the current mitigation hatchery production.

11

An analysis by TAC (1992) estimated that the total production (ocean and in-river harvest and spawning escapement) from the natural spawning fall chinook in the John Day reach ranged from 93,000 to 121,000 between 1958 and 1967. They chose the mid-point of 107,000 to represent the total production that should be mitigated for based on the 30,000 annual spawning escapement. If the reach could support 55,000 natural spawners (Section 7.17.4.2), then surplus production should be about 141,000, not 74,000 (Section 7.17.5). If you assume that improvements in fish passage downstream from John Day Dam over the last 30 years have increased SAR rates, then the expected returns from 55,000 spawners would be even greater.

12

An analysis of recent information from Hanford Reach fall chinook indicate a similar rate of production. Based on the natural spawning escapement and subsequent returns for the 1990-

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11. We concur with your comment regarding a potentially higher smolt-to-adult survival rate for naturally produced fall chinook smolts, and we have adjusted our analysis accordingly. The Corps will increase the estimated total number of returns produced by naturally spawning fall chinook by a factor of 1.56 (based on Chapman et al. 1994, as referenced in the Phase I report) to indicate a survival advantage for naturally produced Upriver Bright fall chinook smolts over mitigation hatchery releases.

12. Under the revised analysis of potential change in Upriver Bright fall chinook production below McNary Dam using a smolt-to-adult return rate of 3.29% (PATH 1999) and a natural smolt survival advantage of 1.56 times over mitigation hatchery production (Chapman et al. 1994), an estimated 55,000 natural spawners would produce approximately 194,500 total returns to the mouth of the Columbia River, with a maximum potential harvestable surplus component of 139,500 fish under drawdown to natural river channel. This figure is only slightly less than the sum (i.e., 148,600 fish) of the maximum potential harvestable surplus of fall chinook produced below McNary Dam under current reservoir conditions (10,600 fish) plus the estimated production of harvestable fish from the associated mitigation hatchery program (138,000 fish), under conditions of good ocean survival.

1994 broods, the average age composition of those returns, and annual brood specific ocean exploitation rates, the average harvestable production was 2.6 times the escapement. In other words, an escapement of 55,000 Hanford Reach adult spawners would result, on average, in 141,000 harvestable fish. Again, this is considerably more than the 74,000 produced by 55,000 potential John Day spawners indicated in Sections 7.17.4.2 and 7.17.5.

12 cont.

The calculation of harvestable production from the escapement of 30,000 hatchery spawners is inaccurate. The target production is in fact 107,000, as recommended by TAC (1992) (see above). The appropriate interpretation of hatchery mitigation benefits is the objective of 107,000, not the 144,000 indicated in Section 7.17.5. Although the John Day mitigation hatchery programs have generally reached their goal of 30,000 spawners recently, much of the production has been at areas below John Day Dam, contrary to the intent of the mitigation agreement.

13

Section 7.17.6 and Summary page 20. The statements regarding drawdown impacts to the white sturgeon population are inaccurate and presented in a biased manner. Both the Summary document and Section 7.17.6 state that rearing conditions for juvenile sturgeon may not improve. This is in direct conflict with Section 8.2.3 of the Aquatic Resources Appendix, and Attachment C, pages 53 and 54 of the Aquatic Resources Appendix, where references are cited indicating that juvenile rearing habitat would improve under drawdown conditions. The statement in Section 7.17.6 that rearing conditions would limit the overall number of sturgeon in the John Day reach implies that there would be a negative effect on the white sturgeon population. Obviously, something has to limit production, however, as presented on page 88, Attachment C of the Aquatic Resources Appendix, it is clear that under drawdown conditions, spawning conditions, which are currently limiting production, and rearing habitat would improve. The important point is that the sturgeon population would likely increase under drawdown conditions, which was not clearly stated in the summary document.

14

Section 7.17.1.6. The statement that the benefits from drawdown may be less than those estimated by PATH modeling results based on 1999 survival estimates is an example of the selective use of information to portray drawdown alternatives only in a negative light. For example, there was no mention of the effects of using the 1999 survival rate on the projected benefits from wild production. The reason that 1999 system survival rates were higher than in the past was because of the exceptional runoff conditions, which are unlikely to be duplicated on a consistent basis. However, even suggesting that one years' data is meaningful is not scientifically responsible.

Aquatic Resources Appendix Attachment A. This report was clearly written. Statistical analyses appeared to be applicable and rigorously applied. Suggestion for future research appears reasonable, however, would suggest further studies to elaborate on juvenile salmonid habitat preferences (i.e. substrate, structure, temperature, water velocities, predator avoidance behavior, occupancy duration, and growth information).

As stated by the author(s), conclusions regarding changes in fish community structure are very tenuous given 3 years of data (comparison of long term changes is actually made from 2 points; 84-84 and 95 data) and the large range of year-class strengths that are inherent in these fish

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13. The Corps estimates of change in potential production for fall chinook below McNary Dam resulting from drawdown were very cursory. They were based on changes in potential spawning habitat availability, not on numbers of fish, which are unavailable. In making these estimates, we selected assumptions that maximized the potential benefits, and we used consistent assumptions (i.e., regarding smolt-to-adult survival rates under good ocean conditions) to convert habitat availability into potential numbers of naturally produced fish, and also to characterize mitigation hatchery production potential. Given that changes in production potential were based on maximum survival rates, the difference between our estimated production potential of 138,000 fall chinook for the mitigation hatchery program and the average production estimate of 107,000 fall chinook that serves as the program production goal is, in the Corps' view, reasonable.

14. Section 8.2.3 "Drawdown to Natural River (Alternative 3)" of the Aquatic Resources Appendix did not state that rearing habitat conditions for white sturgeon would improve under drawdown conditions. In this section, the Corps presents information based on Bennett (1999) that indicates spawning habitat for white sturgeon is likely to increase, but rearing conditions may not improve with drawdown, which may limit white sturgeon production following drawdown. The pages you cite (page 53 and 54) in Attachment C of the Aquatic Resources Appendix discuss habitat conditions for white sturgeon under current, impounded conditions. Under these conditions, Bennett et al. (1993a and b, as cited in the report) found that the impounded river contained more rearing habitat for age 0 and juvenile white sturgeon than the unimpounded lower Columbia River Reach located below Bonneville Dam.

We did not state in Section 7.17.6, as you have suggested, that "rearing conditions **would** limit the overall number of sturgeon in the John Day reach". Rather, we said that "production of white sturgeon would probably…benefit from a return to more riverine conditions." However, we pointed out, based on the information discussed above, that "Rearing conditions for white sturgeon **may** not improve with drawdown. This life stage **may** subsequently limit the population size of sturgeon in the reach following drawdown." These are the salient facts, based upon currently available information.

1994 broods, the average age composition of those returns, and annual brood specific ocean exploitation rates, the average harvestable production was 2.6 times the escapement. In other words, an escapement of 55,000 Hanford Reach adult spawners would result, on average, in 141,000 harvestable fish. Again, this is considerably more than the 74,000 produced by 55,000 potential John Day spawners indicated in Sections 7.17.4.2 and 7.17.5.

The calculation of harvestable production from the escapement of 30,000 hatchery spawners is inaccurate. The target production is in fact 107,000, as recommended by TAC (1992) (see above). The appropriate interpretation of hatchery mitigation benefits is the objective of 107,000, not the 144,000 indicated in Section 7.17.5. Although the John Day mitigation hatchery programs have generally reached their goal of 30,000 spawners recently, much of the production has been at areas below John Day Dam, contrary to the intent of the mitigation agreement.

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15 Section 7.17.1.6. The statement that the benefits from drawdown may be less than those estimated by PATH modeling results based on 1999 survival estimates is an example of the selective use of information to portray drawdown alternatives only in a negative light. For example, there was no mention of the effects of using the 1999 survival rate on the projected benefits from wild production. The reason that 1999 system survival rates were higher than in the past was because of the exceptional runoff conditions, which are unlikely to be duplicated on a consistent basis. However, even suggesting that one years' data is meaningful is not scientifically responsible.

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As stated by the author(s), conclusions regarding changes in fish community structure are very tenuous given 3 years of data (comparison of long term changes is actually made from 2 points; 84-84 and 95 data) and the large range of year-class strengths that are inherent in these fish

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15. There was no intention on the part of the Corps to present Phase I study results in either a positive or a negative light with respect to any particular drawdown alternative. For purposes of a decision on whether further study was warranted, the Corps elected under Phase I to present Congress with information regarding the maximum possible biological benefits and the minimum likely environmental impacts and costs associated with drawdown of John Day Reservoir. For example, a range of potential benefits was reported as a consequence of the PATH modeling approach results, depending upon the assumptions made regarding prospective model parameter values. The Corps chose to report the high end of this range under the Phase I study. As a consequence, it was the responsibility of the Corps to also forewarn Congress, and the Region, that actual biological benefits are likely to be less, while impacts and costs are likely to be more, than those reported under Phase I of the study. We would expect further study to provide a better estimate of biological benefits likely to be realized from drawdown, but we would also expect this estimate to be less than the benefits reported under Phase I.

16. If further study under Phase II is authorized and funded by Congress, the Corps will work with Regional fish management agencies and Tribes to define appropriate types and scopes for biological investigations to be performed under the Phase II study, as was done for the Phase I study.

populations. For example, Connolly and Rieman (1988) found that smallmouth bass recruitment could vary 5 fold from one year to the next. Perhaps support for changes in near shore community structure could be supported through information from other longer term sampling for the main channel communities.

17 The introduction suggests that the main purpose of this study was to evaluate the impact John Day drawdown on fish community structure and the associated indirect effects of on juvenile chinook. This objective is not well addressed with this study as presence and absence of fishes in near shore habitat is the only factor examined. Although only addressed in the discussion, concluding that drawdown may adversely affect chinook because shallow littoral provide important rearing areas for fall chinook salmon was based on the observation of smolt presence in backwater habitat. This conclusion seems premature given the information provided through this study. The peak migration of juvenile fall chinook in JDA reservoir occurs in late June through August with Snake River fall chinook arriving even later. Yet in this reports the data suggests very few juvenile fall chinook were found during June or August (0 chinook in most seine hauls in August). Temperatures reported for backwaters often above 20-27° C around this time are 2-5° C higher than the main channel. These temperatures are well above 18° C where feeding ceases and often near the lethal temperature of 24° C (Hewett and Johnson 1992). Perhaps chinook are actively avoiding these areas.

A much stronger conclusion that was brought up in this report is the potential indirect benefits of drawdown on survival of juvenile chinook by removing backwaters that appear to be more suitable for predatory and competitive non-native fishes. Deleterious effects of these non-natives on juvenile salmonids have been well documented (Poe and Rieman 1988). The benefit of these backwater habitats for non-native fish recruitment is a major point of this study.

Aquatic Resources Appendix Attachment F. This report provides results of 3 different modeling exercises to evaluate the impacts of JDA drawdown on spring and fall chinook. Much of the report is clearly written and well organized. The report draws on analyses conducted in PATH and attempts to use a biological decision analysis framework to provide a range of results given uncertainties in our understanding of factors affecting salmon survival. Paul Wilson supplied comments on this document so I refer mainly to those with a few added comments.

The first analysis uses the decision analysis framework developed by PATH. Many of the methods are consistent with PATH with a few exceptions. Supplying spawner numbers was very informative as recovery levels used in PATH are somewhat arbitrarily determined by NMFS (i.e. recovery goals are met if stocks have a 50% probability of meeting spawner thresholds which were determine by 60% of pre-70's numbers-in other words stocks are considered recovered with a flip-of-the-coin probability to meet slightly greater than half the level of stocks already depressed).

This analysis addresses differences in probability of recovery under different management actions by comparing the mean of a distribution of outcomes for each action. Because a decision incorporates different assumptions and sources of variability to produce a range of results, it is possible to determine which action is most risk adverse (a narrower range of outcomes suggests

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17. While the Corps agrees that it would be premature to conclude that loss of existing habitat used by rearing fall chinook salmon in the John Day pool would definitely be detrimental to the production of fall chinook salmon under drawdown conditions, we do not agree that it is premature to conclude that loss of this habitat **may** be detrimental, as we have in the Phase I report. Without a clear understanding of the importance of the existing rearing habitat to the productivity of this healthy stock, there is an inherent risk to the stock that would result from impacting this habitat. While the Corps points out in the Phase I report that rearing conditions for fall chinook under drawdown could be as good as, or better than, they are under current conditions, the Corps does not believe that it is advisable to assume this is the case without further investigation.

Fish populations typically adapt, if possible, to environmental change. Substantial changes to habitat quality and availability in the Columbia River estuary have been documented. It is not unreasonable to suspect that certain life history components of the Upriver Bright fall chinook population that may have historically used natural rearing habitat in the Columbia River estuary currently rear in alternative habitat provided in the McNary and John Day pools (see Chapman et al. 1994).

We cite several reports documenting that this type of habitat is important to fall chinook produced in other areas of the Northwest. The presence of fall chinook rearing in the John Day pool has been documented, but little is known regarding the relative importance of this habitat to the productivity of the associated fall chinook population. Chapman et al. (1994) states in a footnote on page 89 that "...many subyearlings (that emerge at about 38-39 mm in April and May) leave the Hanford Reach, and in fact many fish cross McNary Dam, before early June. These fry are relatively weak swimmers and many may pass with spill during the spring. These fish would be undetected passing the dam. Mean size of subyearlings that were observed passing McNary Dam rapidly increases from about 45 mm in late May to 100 mm by mid- to late June (Wagner 1991; Koski et al. 1985)." This suggests that at least some of the naturally produced Upriver Bright fall chinook from the Hanford Reach rear in the existing habitat in the upper John Day pool during May and June, before water temperatures in nearshore areas become elevated. They grow in size and move offshore, presumably to begin seaward migration, prior to late June when nearshore temperatures increase. In our Phase I report, we simply state that there is substantial risk in dramatically modifying or eliminating habitat that is currently being used by fall chinook rearing in the John Day pool without first obtaining a better understanding of its importance to the productivity of that population.

populations. For example, Connolly and Rieman (1988) found that smallmouth bass recruitment could vary 5 fold from one year to the next. Perhaps support for changes in near shore community structure could be supported through information from other longer term sampling for the main channel communities.

The introduction suggests that the main purpose of this study was to evaluate the impact John Day drawdown on fish community structure and the associated indirect effects of on juvenile chinook. This objective is not well addressed with this study as presence and absence of fishes in near shore habitat is the only factor examined. Although only addressed in the discussion, concluding that drawdown may adversely affect chinook because shallow littoral provide important rearing areas for fall chinook salmon was based on the observation of smolt presence in backwater habitat. This conclusion seems premature given the information provided through this study. The peak migration of juvenile fall chinook in JDA reservoir occurs in late June through August with Snake River fall chinook arriving even later. Yet in this reports the data suggests very few juvenile fall chinook were found during June or August (0 chinook in most seine hauls in August). Temperatures reported for backwaters often above 20-27° C around this time are 2-5° C higher than the main channel. These temperatures are well above 18° C where feeding ceases and often near the lethal temperature of 24° C (Hewett and Johnson 1992). Perhaps chinook are actively avoiding these areas.

18 A much stronger conclusion that was brought up in this report is the potential indirect benefits of drawdown on survival of juvenile chinook by removing backwaters that appear to be more suitable for predatory and competitive non-native fishes. Deleterious effects of these non-natives on juvenile salmonids have been well documented (Poe and Rieman 1988). The benefit of these backwater habitats for non-native fish recruitment is a major point of this study.

Aquatic Resources Appendix Attachment F. This report provides results of 3 different modeling exercises to evaluate the impacts of JDA drawdown on spring and fall chinook. Much of the report is clearly written and well organized. The report draws on analyses conducted in PATH and attempts to use a biological decision analysis framework to provide a range of results given uncertainties in our understanding of factors affecting salmon survival. Paul Wilson supplied comments on this document so I refer mainly to those with a few added comments.

19 The first analysis uses the decision analysis framework developed by PATH. Many of the methods are consistent with PATH with a few exceptions. Supplying spawner numbers was very informative as recovery levels used in PATH are somewhat arbitrarily determined by NMFS (i.e. recovery goals are met if stocks have a 50% probability of meeting spawner thresholds which were determine by 60% of pre-70's numbers-in other words stocks are considered recovered with a flip-of-the-coin probability to meet slightly greater than half the level of stocks already depressed).

This analysis addresses differences in probability of recovery under different management actions by comparing the mean of a distribution of outcomes for each action. Because a decision incorporates different assumptions and sources of variability to produce a range of results, it is possible to determine which action is most risk adverse (a narrower range of outcomes suggests

Corps of Engineers Response

18. The Corps concluded in the Phase I report that benefits would accrue to juvenile migrants passing through the John Day reach under drawdown conditions as a result of reduced losses to predation. These conclusions were based on assumptions and associated analyses performed using the Regionally developed PATH life-cycle modeling approach. However, additional information suggests that there may be little, if any, change in losses to predation under drawdown conditions. Under current conditions, for example, predatory activity of northern pikeminnow usually increases substantially in mid to late June as water temperatures increase and as they move from spawning areas into nearshore and other habitat. Study results reported in Phase I documents indicate that rearing fall chinook salmon are moving out of those habitat areas at that time. In addition, Zimmerman and Ward (1999) found losses to predation by northern pikeminnow were greatest in the free-flowing reaches of the lower Columbia River below Bonneville Dam in comparison to impounded reaches upstream, including the John Day Reservoir area.

19. The analysis provided by the Regionally developed PATH approach is very complex and, unfortunately, difficult for many reviewers to grasp. Both the PATH group, and Dr. Anderson in his paper comprising Attachment F to the Aquatic Resources Appendix, have made a concerted effort to explain the details of this approach and the results of their modeling work. The Corps has elected not to engage in a separate effort to explain these details, but has referred readers to these sources for those details. While the Regional PATH analysis and Dr. Anderson's paper present a range of results, each dependant on the set of assumptions used in modeling, the Corps elected to report in the Phase I document only the "high end" of those prospective results. This is consistent with the Corps intention, under the Phase I study, of presenting the most optimistic (but scientifically defendable) assessment of potential benefits associated with drawdown for comparison with assessments of minimum likely environmental impacts and social/financial costs.

19 cont.

that less uncertainty exist). This very important result of a decision analysis was not addressed in this analysis. Distributions of the results for each action should be presented.

This analysis also did not balance pessimistic and optimistic assumptions of in-river survival or transportation effectiveness as was done in PATH (although there was no obligation to do so). For example, in PATH, FLUSH represented more pessimistic assumptions (mortality is cumulative) while CRiSP represented optimistic in-river and delayed transportation survival assumptions for current river operations. The NMFS approach is even more optimistic than CRiSP (Bouwes et al. 1999). This analysis used the FLUSH model and FLUSH D values, the CRiSP model and CRiSP D values, and the CRiSP model and NMFS D values producing more optimistic outcomes of impounded conditions. To get at the PATH approach just FLUSH and CRiSP should be averaged together. For fall chinook 5 D value assumptions were used. In PATH, however; only 4 assumptions were used D1, D3, D4, D5. Anderson developed hypotheses D2 and D5 for PATH but only D5 was incorporated into the analyses. Assumption D1, also developed by a BPA consultant, is a very optimistic assumption of the future effects (relative to past effects) transportation. Therefore, 3 very optimistic assumptions of transportation were used in this analysis.

In the deterministic life-cycle model, it is unclear why the BKD and CLIMATE hypotheses used the same survival values as suggested in Table 26.

Literature Cited

Connolly, P.J. and B.E. Rieman. 1988. Population dynamics of walleye and smallmouth bass and potential predation on salmonid smolts in John Day Reservoir. Pages 307-348 in T.P. Poe and B.E. Rieman, editors. Predation by resident fish on juvenile salmonids in John Day Reservoir. Final report. Bonneville Power Administration. Portland, Oregon.

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Poe, T.P. and B.E. Rieman, editors. 1988. Predation by resident fish on juvenile salmonids in John Day Reservoir. Final report. Bonneville Power Administration. Portland, Oregon.

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State of Washington
DEPARTMENT OF FISH AND WILDLIFE
Mailing Address: 600 Capitol Way N • Olympia, WA 98501-1091 • (360) 902-2200, TDD (360) 902-2207
Main Office Location: Natural Resources Building • 1111 Washington Street SE • Olympia, WA

May 18, 2000

Colonel Randall J. Butler
District Engineer
U.S. Army Corps of Engineers
Portland District
Post Office Box 2946
Portland, Oregon 97208-2946

Re: John Day Drawdown Phase 1 Study

Dear Colonel Butler:

The Washington Department of Fish and Wildlife (WDFW) appreciates the opportunity to review and comment on the Portland District's document entitled "Salmon Recovery through John Day Reservoir, John Day Drawdown Phase 1 Study and Technical Appendices, January 2000." WDFW commends the Portland District for its timely assembly and assimilation of voluminous technical data into the Phase 1 Report .

WDFW believes that your recommendation to conduct no further study of John Day Drawdown is premature . We request that you reassess the current analysis to provide a more realistic representation of the potential benefits to be achieved from John Day Drawdown. We are particularly concerned that the analyses in the document appeared pre-disposed to rejection of drawdown (see enclosed comments).

Alternative 3 (Natural River Drawdown) clearly has the greatest potential benefit and Alternative 3 should have continued development so that it is available for Congressional and Regional approval and implementation at the time of the hydrosystem decision point being established via the National Marine Fisheries Service (NMFS) 2000 Federal Columbia River Power System (FCRPS) Biological Opinion.

The Region is not ready to discard John Day Alternative 3 in conjunction with natural river drawdown of the four Lower Snake River Dams as the FCRPS configuration required to achieve recovery for the Endangered Species Act (ESA) listed Upper Columbia River and Snake River salmon and steelhead. The Corps of Engineers should not discard Alternative 3 as a potential future action, until studies have clearly demonstrated that "Aggressive Action" with the FCRPS can provide survivals that accommodate recovery of listed species and sustainable production for unlisted species.

WDFW's specific areas of concern regarding the need to re-evaluate the benefits of Alternative 3 are *the omission of an analysis of the effects on adult passage*, the level of survival increase for juvenile migrants, the potential increase in Up River Bright fall chinook production, and the value of restored shrub-steppe habitat in association with a restored riparian habitat corridor. The elaboration of our concerns, as well as specific technical comments on the John Day Drawdown Phase 1 Study, are provided in the enclosed departmental memoranda.

If you have questions regarding this response please contact Mr. Rod Woodin (360) 902-2811or Mr. Bill Tweit (360) 902-2723.

Sincerely,

Jeff P. Koenings, Ph.D.
Director

JPK:BT:db

Enclosures (2)

cc: Bill Tweit
Rod Woodin

STATE OF WASHINGTON
DEPARTMENT OF FISH AND WILDLIFE
INTERGOVERNMENTAL POLICY

May 11, 2000

To: Bill Tweit, Columbia River Policy Manager

From: Rod Woodin, Columbia River Policy Coordinator

SUBJECT: Comments on John Day Drawdown Phase 1 Study and Biological/Environmental Technical Appendix Aquatic Resources Section

General Comments

- There is a critical omission in the report in that adult passage is not assessed.
- Alternative 3, natural river drawdown, clearly provides the greatest potential benefits for anadromous fish production restoration both within the area of the current John Day reservoir and for upstream stocks migrating through this reach.
- The analysis presented, despite assertions that it is optimistic, substantially under estimates potential benefits for Alternative 3. This is most evident for URB fall chinook.
- Implementation of Alternative 3 is not advised as long as we are utilizing smolt transportation as the principal means of passage for Snake River stocks, as this would eliminate the ability to transport via barges.
- The presentation of the results also is directed toward a negative response. ie, small benefits for a high price, without placing the benefits into an appropriate context of where ,how and at what cost can similar benefits be provided.
- We should seek to keep development of Alternative 3 active to the point of having implement able plans available in the event that the **All H** actions excluding drawdown are not successful in achieving recovery.

Specific Comments

Phase 1 Study

1 Page 95, 7.17.1.para.2. The indication of potential loss of URB fall chinook production is highly speculative and contradicts the presentation in Table 34 which indicates an increase in usable habitat for Natural River (Alternative 3).

Page 96,7.17.1.1. In addition to the benefit of decreased travel time the yearling migrants will derive substantial benefit from the elimination of both direct and indirect dam passage mortality at John Day. This is a prime example of the chronic understatement of potential benefits found in this document.

Page 96,7.17.12. The speculation of the potential utility of the current John Day reservoir as rearing habitat of juvenile URB fall chinook vs the following section (7.17.3) estimate of **increased habitat** with Alternative 3 is useful in pointing out an important area of uncertainty which should be resolved to better understand the potential results from the implementation of Alternative 3. In addition there is no discussion of the likely change in production of food resources for URB juveniles which would occur with a return to natural riverine conditions.

Page 97, 7.17.1.6. The influence of indirect dam passage mortality should be address as well as direct dam passage mortality. The concentration of the discussion and analysis on recent year results when migration conditions were improved via high flows and low temperatures is no appropriate! The full range of expected future conditions should be considered. If the COE wanted to present an "optimistic" analysis they would estimate benefits in a flow year comparable to 1977.

Page 98, Table 35. I question the relative survival increase for yearling spring chinook migrants which is apparently based upon one year (1998) PIT tag data analysis, which yields a mean John Day survival of 0 .83. In contrast NMFS in their SIMPAS model indicate a range of survival at John Day of from 0.75 to 0.85 in low to high water years. Use of the range of expected performance is more appropriate. The fall chinook values just do not make sense since the estimate on page 97 for just reduction in predation is 2-3% the total benefit must exceed the 2-3% indicated in Table 35.

Page 98, 7.17.1.7. The discussion of barge transportation does not make it clear that "the jury is still out" on the issue of the ultimate efficacy of smolt transportation. Smolt transportation from the Snake River has some perceived benefits over current conditions. But, as thoroughly discussed in the Snake River Feasibility Study the benefits are apparently insufficient to achieve recovery. Also, there may be severe negative consequences such as transported fish straying into watersheds other than their place of origin and cross breeding with critically depressed and ESA listed stocks. The loss of barge transportation of smolts is presented as a negative unless the Lower Snake River Dams are also drawn down. This is **not** a certainty at this time.

Page 2

Corps of Engineers Response

1. The statement that drawdown would result in the loss of habitat currently used by juvenile fall chinook salmon for rearing is not speculative. Use of this habitat, which would no longer be inundated under drawdown conditions, was documented by means of field survey results, as described in the Phase I report. What is unknown is the relative importance of this habitat to the current productivity of fall chinook, and the degree to which the habitat might be replaced with alternative suitable habitat under drawdown conditions. This issue has been identified as an important concern that would receive further investigation before a decision could be made to lower the John Day reservoir.

Additional text has been added to the final Phase I report to explain the basis for the Corps' conclusion. Fish populations typically adapt, if possible, to environmental change. Substantial changes to habitat quality and availability in the Columbia River estuary have been documented. It is not unreasonable to suspect that certain life history components of the Upriver Bright fall chinook population that may have historically used rearing habitat in the Columbia River estuary currently rear in alternative habitat provided in the McNary and John Day pools (see Chapman et al. 1994).

Several reports documenting that this type of habitat is important to fall chinook produced in other areas of the Northwest have been cited. The presence of fall chinook rearing in the John Day pool has been documented, but little is known regarding the relative importance of this habitat to the productivity of the associated fall chinook population. Chapman et al. (1994) states in a footnote on page 89 that "…many subyearlings (that emerge at about 38-39 mm in April and May) leave the Hanford Reach, and in fact many fish cross McNary Dam, before early June. Mean size of subyearlings passing McNary Dam rapidly increases from about 45 mm in late May to 100 mm by mid- to late June (Wagner 1991; Koski et al. 1985)." This suggests that at least some of the naturally produced URB fall chinook from the Hanford Reach rear in the existing habitat in the upper John Day pool. In our Phase I report, we simply state that there is substantial risk in dramatically modifying or eliminating habitat that is currently being used by fall chinook rearing in the John Day pool without first obtaining a better understanding of its importance to the productivity of that population.

Specific Comments

Phase 1 Study

1 cont. Page 95, 7.17.1.para.2. The indication of potential loss of URB fall chinook production is highly speculative and contradicts the presentation in Table 34 which indicates an increase in usable habitat for Natural River (Alternative 3).

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Corps of Engineers Response

1. (continued)

Results presented in Table 34 were based on modeling performed by USGS. The model developed by USGS for assessing changes in the relative abundance of potential fall chinook rearing habitat under the various drawdown scenarios, while based on the best information available at the time, was limited in its capability and applicability in several respects. It considered certain parameters important for discerning rearing habitat quality. These included water depth, water velocity, and distance from shore, based on the riverine conditions examined in the Hanford Reach. However, it was unable to consider other important parameters such as substrate type, and presence and type of vegetation and structure because this information was generally unavailable. In addition, the model was not based on data derived from assessments of rearing habitat used by fall chinook in non-riverine areas, such as in estuaries or in impounded areas where fall chinook are known to occur. It is, therefore, limited to some extent in its applicability to assessment of habitat quality within those types of habitats. As a result, the Corps concludes that the cursory assessment provided from use of this model indicates only that approximately the same, or slightly more, potential rearing habitat might result under drawdown conditions as compared to existing conditions. It does not indicate that the quantity or quality of rearing habitat under drawdown would definitely be superior to current rearing conditions. Thus, the risk to fall chinook production associated with loss of the rearing habitat currently in use remains.

2. The Regionally developed PATH modeling approach that was used to assess potential biological benefits from John Day drawdown incorporated consideration of benefits associated with increased survival for juvenile migrants resulting from dam removal. Although modeling provided a range of results depending on the associated assumptions used regarding model parameters, the Corps elected in each case to use the "high end" of the range in an effort to assess the maximum potential biological benefits that might result from drawdown. Benefits actually realized would likely be less.

Specific Comments

Phase 1 Study

Page 95, 7.17.1.para.2. The indication of potential loss of URB fall chinook production is highly speculative and contradicts the presentation in Table 34 which indicates an increase in usable habitat for Natural River (Alternative 3).

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Corps of Engineers Response

3. Concur that the relationship between currently available rearing habitat in the John Day pool and the current productivity of Upriver Bright (URB) fall chinook salmon is an important uncertainty. Further study of this matter is not necessary to meet the goals of the Phase I study. The Phase I report points out on page 96 that invertebrate production and, thus, food supply for juvenile salmonids and other fish species is generally better under natural riverine conditions that are likely to develop over time following drawdown. However, impacts of siltation during inundation and continuation of high-flow attenuation from upstream development could prolong the timeframe for recovery of habitat to a natural, productive condition. These uncertainties made it impossible for the Corps to estimate the likely change in production of trophic resources for URB fall chinook that might result from drawdown.

4. This section discusses in-river survival factors on a reach-by-reach basis and does not include system effects such as delayed mortality. Indirect mortality is discussed under other sections (e.g., Section 7.17.1.7 Barge Transportation). Results presented are those based on the Regionally developed PATH modeling approach. PATH considered a full range of flow years and environmental conditions in their analysis. The Corps elected to use the "high end" of PATH modeling results in an effort to identify the maximum potential biological benefit that might result from John Day drawdown.

5. Survival rate changes reported in Table 35 of the Summary Report and in Table 10 of the Aquatic Resources Technical Appendix are with respect to juvenile migration from above Lower Granite Dam to below Bonneville Dam, not just within the John Day reach alone. Most of the benefits that fall chinook salmon derive from John Day drawdown relate to assumed reductions in losses to predation with decreased travel time. Hence, the potential survival increases reported on page 97 with respect to reduced predation losses are basically equal to the survival benefits reported in Table 35 for fall chinook.

6. Edits to Section 7.17.1.7 "Barge Transportation" have been added to point out concerns regarding potential straying of adult returns and potential selection among certain life history strategies over others that may result from transportation of juveniles. The effects of these potential impacts are presumed to contribute to the "D factor" that results in a lower smolt-to-adult survival rate for transported fish in comparison to non-transported fish surviving to below Bonneville Dam. The Corps elected to use PATH analytical approach results that assumed low "D factor" values for Snake River chinook salmon stocks as a means of identifying maximum potential biological benefits associated with John Day drawdown.

7 Page 100, 7.17.3. As discussed above regarding Table 35 the estimates of juvenile survival improvement at John Day appear to be biased low by only considering one evaluation under good conditions and thus the life cycle modeling will yield reduced estimates of benefits. In addition for Hanford Reach URB's the potential for low transport effectiveness is **not** considered and thus a negative impact is estimated for drawdown. This is highly speculative since about 50% of the passage obstacle being avoided by transport is John Day reservoir an dam.

8 Page 103. **There is no section in the report assessing the effects on adult salmonid passage !!** This is a critical omission since adults would achieve substantial benefit from drawdown of John Day which has historically had major adult passage problems including observations of direct mortality.

Page 103, 7.17.4.1. WDFW staff have conducted surveys in the upper John Day reservoir looking for evidence of fall chinook spawning and found none. Therefore the indication of 1,113 acres of currently usable habitat appears to be an unsupportable speculation.

Page 103, Table 40. This information is difficult to review since non of the cites in the footnote are actually included in the literature references section of the report. However, it appears that Snake River spawning habitat availability data is utilized to generate an estimate of usable area when Hanford Reach data is most likely more representative. This could have greatly reduced the estimate of usable area and thus the estimate of spawner capacity.

Page 105, Table 41. Again, there is no verification that any spawning presently occurs in John Day reservoir.

Page 105. The statement, "*The potential improvements to spawning habitat would not benefit the local stock of fall chinook ...* " is a gross misstatement. The model in Table 41 indicates that this habitat would support a naturally reproducing population of 129,000 URB fall chinook. An increase in natural production of this magnitude would be a huge benefit to this resource. It is difficult to conceive any other action which could yield this result.

Technical Appendix Aquatic Resources Section

Page 5. para. 1. The statement, "Migration for both juvenile and adult fish would be improved by removal of the John Day Dam as an obstacle to passage." is the only reference I can find in the entire document to adult passage. Again, this is a huge omission.

Page 6, 5.1. It is appropriate to focus attention on ESA listed species and stocks. However, it is also important to recognize and document the potential to benefit non listed stocks such as those from the Yakima and Umitalla rivers as well as summer chinook and sockeye from the Upper Columbia.

7. See response number 5. Table 35 only examines relative survival rates for juvenile migrants from above Lower Granite Dam to below Bonneville Dam. The estimated benefits resulting from John Day drawdown that are presented in Tables 37 through 39 consider all aspects of survival throughout the entire life history of the species examined. Those results, based on the PATH life-cycle modeling approach, include incorporation of the potential effects of low transportation effectiveness through the assumption that "D factors" are low.

8. A statement was added under Section 7.17.4 "Potential Effects on Spawning Adult Salmonids" in the Summary report (and under Section 7 of the Aquatic Resources Technical Appendix) indicating that adult fish passage and survival past John Day Dam would improve under most environmental conditions with drawdown to natural channel level. Benefits resulting from improved adult passage survival under drawdown conditions were incorporated into the PATH life-cycle modeling approach. Adult upstream passage survival benefits assumed for modeling purposes under the PATH modeling approach are presented in Attachment F. The subject title under Section 7.17.3 of the Summary report (and under Section 6.4.1.5 of the Aquatic Resources Technical Appendix) were edited accordingly. The estimate of biological benefits presented in Tables 37 through 39 of the Summary report (and Tables 16 through 18 of the Aquatic Resources Technical Appendix) consider all aspects of survival throughout the entire life history of the species examined, including increased adult survival.

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Technical Appendix Aquatic Resources Section

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Page 3

Corps of Engineers Response

9. Concur that no information is available substantiating current use of potential spawning habitat by fall chinook in the John Day reach below McNary Dam. We also concur that the assessment we were able to make regarding potential change in spawning habitat under drawdown conditions, and associated potential change in production of fall chinook, was very cursory. Estimates of potential spawning habitat under both existing and drawdown conditions were made by USGS (1999) using hydraulic modeling and associated habitat parameters for depth and velocity, as described under Section 7.3.1.2 "Habitat Quantity" of the Aquatic Resources Technical Appendix. Depth and velocity criteria were based on data collected in the Hanford Reach.

The assumptions made regarding current and future fall chinook production potential were consistent, given our estimates of current and future availability of potential spawning habitat. In both cases, we assumed that spawning was limiting fall chinook production and that the available potential habitat could, and would, be fully seeded. An additional assumption under drawdown conditions was that the increased potential spawning habitat would be fully recovered to usable condition. All of these assumptions have the effect of maximizing the assessment of potential benefits for Upriver Bright fall chinook that might result from John Day drawdown.

While it is true that there may currently be little or no natural production of fall chinook in the John Day reach, the same may be true under drawdown conditions. The estimation of change in potential fall chinook production we have presented based on potential spawning habitat availability represents a balanced assessment of current versus future potential benefits adequate for the Phase I reconnaissance-level study. It would be inappropriate to conclude that potential spawning habitat under drawdown conditions will somehow become fully recovered, seeded with spawners, and productive while assuming that existing habitat with the same characteristics is incapable of these conditions.

Page 100, 7.17.3. As discussed above regarding Table 35 the estimates of juvenile survival improvement at John Day appear to be biased low by only considering one evaluation under good conditions and thus the life cycle modeling will yield reduced estimates of benefits. In addition for Hanford Reach URB's the potential for low transport effectiveness is **not** considered and thus a negative impact is estimated for drawdown. This is highly speculative since about 50% of the passage obstacle being avoided by transport is John Day reservoir an dam.

Page 103. **There is no section in the report assessing the effects on adult salmonid passage !!** This is a critical omission since adults would achieve substantial benefit from drawdown of John Day which has historically had major adult passage problems including observations of direct mortality.

Page 103, 7.17.4.1. WDFW staff have conducted surveys in the upper John Day reservoir looking for evidence of fall chinook spawning and found none. Therefore the indication of 1,113 acres of currently usable habitat appears to be an unsupportable speculation.

Page 103, Table 40. This information is difficult to review since non of the cites in the footnote are actually included in the literature references section of the report. However, it appears that Snake River spawning habitat availability data is utilized to generate an estimate of usable area when Hanford Reach data is most likely more representative. This could have greatly reduced the estimate of usable area and thus the estimate of spawner capacity.

Page 105, Table 41. Again, there is no verification that any spawning presently occurs in John Day reservoir.

10 Page 105. The statement, "*The potential improvements to spawning habitat would not benefit the local stock of fall chinook ...* " is a gross misstatement. The model in Table 41 indicates that this habitat would support a naturally reproducing population of 129,000 URB fall chinook. An increase in natural production of this magnitude would be a huge benefit to this resource. It is difficult to conceive any other action which could yield this result.

Technical Appendix Aquatic Resources Section

11 Page 5. para. 1. The statement, "Migration for both juvenile and adult fish would be improved by removal of the John Day Dam as an obstacle to passage." is the only reference I can find in the entire document to adult passage. Again, this is a huge omission.

Page 6, 5.1. It is appropriate to focus attention on ESA listed species and stocks. However, it is also important to recognize and document the potential to benefit non listed stocks such as those from the Yakima and Umitalla rivers as well as summer chinook and sockeye from the Upper Columbia.

Corps of Engineers Response

10. The statement in question was a typographical error and has been corrected. In addition a revised analysis incorporating a higher smolt-to-adult survival rate for naturally produced versus mitigation hatchery fish resulted in a larger benefit under drawdown conditions than reported in the draft Phase I report.

11. See response number 8.

12 Page 20, 6.1. The relative rearing potential of the John Day reservoir and natural river as rearing habitat for juvenile URB fall chinook is an uncertainty which should be further assessed. Relative production and availability of food resources would be an important element of this evaluation. Further discussion on this topic at page 24 gives some indication that the natural river is expected to be much more productive than the reservoir.

13 Page 27, 6.2.1.The decreases in smolt travel time discussed, 2 to 3 days at average flows and 7 to 10 days at low flows, are substantial in the context of total smolt travel time for Snake and Upper Columbia stocks in particular.

14 Page 31, 6.2.2. An increase in survival of two to three percent from reduced predation is not "a small overall effect". In the context of juvenile migrant survival in the mainstem Columbia river increasing survival by 2-3 % is a major accomplishment. When tens of millions of smolts are effected the benefit is saving 100's of thousands.

15 Page 35, Table 10. These results appear to be tied to the use of a single survival estimate at John Day 0.83. In the development of their SIMPAS model NMFS has utilized a range of 0.75 to 0.85 for John Day smolt survival. Using the range of performance is a more realistic approach.

16 Page 37, 6.4.1.1. The statement, "Based on these modeling results, transportation may be critical to the success of recovering the Snake River chinook salmon runs" is in stark conflict with the Lower Snake River Feasibility Study which clearly determined that transportation was not resulting in survivals sufficient to accomplish recovery.

17 Page 38, 6.4.1.3. The assertion that the modeling results "maximize the potential benefits" appears to be a misrepresentation based on the numerous points in the report where individual inputs to the modeling utilize minimal benefit values.

18 Page 46, 7.3. The **suspicion** of spawning activity is not sufficient basis to establish a current production level which serves to reduce potential benefits of drawdown for URB fall chinook spawning.

Page 53, 7.3.4. The presumption of the elimination of the hatchery mitigation production with the restoration of the natural river is not justified. There may be currently unfulfilled mitigation obligations which will require the continuation of this hatchery production under alternate funding. One example is Grand Coulee Project mitigation.

Page 54, para. 2. The assertion that the current hatchery program provides more harvestable adults than the potential natural production from the natural river is based upon an 83% harvest rate which is unrealistic in current mixed stock fisheries.

12. We concur.

13. We concur.

14. We concur, and have edited Section 6.2.2 of the Aquatic Resources Technical Appendix accordingly.

15. See response number 5.

16. This statement was removed.

17. The Corps' assessment of potential biological benefits associated with drawdown of John Day Dam leaned heavily on results of the Regionally developed PATH modeling approach. A range of potential benefits was reported as a consequence of the PATH modeling approach, depending upon the assumptions made regarding prospective model parameter values. The Corps chose to report the high end of this range under the Phase I study. As a consequence, these results represent an optimistic assessment of actual benefits that might be realized under drawdown. The Corps would expect further study to provide a better estimate of biological benefits likely to be realized from drawdown, but we would also expect this estimate to be less than the benefits reported under Phase I.

18. See response number 9.

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Corps of Engineers Response

19. The Phase I report does not assume anything about the continuation or termination of any particular hatchery production program. There would be no reason for the Corps to continue to finance production of hatchery fall chinook in mitigation for lost natural production that it has successfully restored. Although the Corps might be called upon to continue funding of this production in mitigation for other, currently unmitigated, losses or other entities may elect to assume this financial responsibility, the associated use of funds represents a loss to the Region in terms of the availability of those funds for additional/alternative mitigation or other use, including the production of additional hatchery fish. We, therefore, conclude that recognition of the Corps' likely termination of funding for this mitigation hatchery program under the circumstances of natural production restoration constitutes a real cost to the Region that should be recognized and considered as a potential circumstance associated with the related natural production benefits.

20. For purposes of consistency and comparability, the total adult returns and harvestable surplus benefit analyses presented in the Phase I report are based on estimates of productivity at maximum sustainable yield. We concur that harvest at associated rates currently results in high risk with regard to sustaining naturally reproducing stocks. That is, hatchery production can sustain higher harvest rates than naturally produced components of a population. As a result, the region is currently investigating ways in which hatchery fish can be marked and selectively harvested to protect naturally reproducing population components while maintaining harvest options. It is not possible for the Corps to determine the long-range consequences of these efforts.

STATE OF WASHINGTON
DEPARTMENT OF FISH AND WILDLIFE
WILDLIFE PROGRAM

DATE: April 21, 2000

TO: Rod Woodin, Columbia River Policy Coordinator
Intergovernmental Policy Group

FROM: Don Larsen, District 4 Wildlife Biologist
Wildlife Program

SUBJECT: Comments on Draft Biological/Environmental Technical Appendix, Wildlife Resources Section, for the John Day Drawdown Phase I Study

General Comments

21

- Significant efforts have occurred in the past and are presently underway to mitigate for wildlife habitat lost through Reservoir creation. The wildlife community has successfully made the case that serious negative impacts to wildlife habitat occurred when the reservoir was constructed, and is currently mitigating for these losses. Although drawing the reservoir back down would create serious problems for some wildlife species, the case that this will also require mitigation needs to be very well thought-out in order to avoid credibility problems with the general public and the agencies responsible for providing wildlife mitigation.

- In many cases drawdown would not result in habitat loss but rather a return back to pre-dam habitat type. In many places throughout the document habitat needs to be defined or qualified. "Habitat" would not necessarily be lost when wetlands are dewatered through drawdown. *Artificial wetland* habitat would be lost. *Historic native upland* habitat could be restored with proper restoration techniques. Constructing a shopping mall on a dewatered site would result in a loss of "habitat". Planting native grasses, forbs, and shrubs on a dewatered site would not result in a loss of "habitat", but rather the restoration of a historic upland site.

- Some wildlife species could benefit from a drawdown, including some rare native species. The document thoroughly details negative impacts that a drawdown would have on wetland dependent species. Wildlife benefits that could occur by restoring shrub-steppe habitat on 21,684 – 29,186 acres (Table 6, page 47) of inundated uplands are not discussed in any detail.

The document mentions that that some predator species could benefit in the short term as fish and amphibians become stranded as water levels are drawn down. If this is

21. The issue of carefully determining mitigation requirements is recognized, however it was not an issue that required resolution in this Phase 1 evaluation and recommendation. For the purposes of this analysis, the anticipated affects of a drawdown were compared to both pre-dam conditions and to existing conditions in order to illustrate the possibilities. These comparisons were made based on the assumption that efforts would be made to stabilize the drawdown zone (i.e., those areas not riprapped) with native vegetation. Wetland or riparian vegetation would be included where such vegetation is most likely to be supported (i.e., based on proximity to a new stream channel). The cost estimate was based on this minimum effort. Additional efforts, including mitigation, vegetation management, and maintenance, would result in higher costs.

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Corps of Engineers Response

22. Habitat is "an area with the combination of resources (like food, cover, water) and environmental conditions (temperature, precipitation, presence or absence of predators and competitors) that promotes occupancy by individuals of a given species (or population) and allows those individuals to survive and reproduce" (Morrison et al.1992).[1] The wetland, riparian, and other habitats adjacent to the John Day Pool currently support an abundance and diversity of wildlife species, regardless of whether they are natural habitats or result from human activities. These habitats and many of the associated species would be lost as a result of drawdown. Efforts would be made to seed and stabilize the non-riprapped areas of the drawdown zone with native vegetation, including wetland or riparian vegetation where it is most likely to be supported (i.e., based on proximity to a new stream channel).

Based on the extent of riprap anticipated to be necessary to protect infrastructure along the reservoir (i.e., approximately 32 percent of the 152 mile total length), it is unrealistic to assume that native upland, wetland, riparian, and other historic habitats could be restored. This reach of the Columbia River prior to dam construction, included residential, urban, industrial, and agricultural land uses (approximately 8 percent of the area). A further 14 percent was occupied by wetland and riparian habitats and 32 percent was unvegetated (i.e., sand dunes/blowouts, sand/gravel/cobble/mud, talus/rock, disturbed/bare/riprap, or open water/lakes/ponds) (Rasmussen and Wright, 1990)[2]. Less than half of the area inundated by the construction of the John Day Dam was shrub/steppe/grass (Rasmussen and Wright, 1990). The 12,647 acres of these upland habitats was a substantial loss. However, several important factors would affect the ability to establish similar or replicate habitats following a drawdown scenario. First, it is highly likely that undesirable, invasive, and/or weedy plants would become established and would preclude the success of native species. The potential for active vegetation management on such a large drawdown area (i.e., 21,648 to 29,186 acres) would be an onerous and costly task and may not be feasible. Mitigation requirements are a second factor. As noted in the Response to Comment No. 1, the cost estimate does not include mitigation, vegetation management, and maintenance, and would be significantly higher if these elements were included. Lastly, the disposition, ownership, or future use of the area following a drawdown scenario is uncertain and was not an issue that was necessary to resolve in this Phase 1 evaluation. It would not necessarily be preserved and maintained under conditions that would be suitable or favorable for supporting the habitats and species desired.

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22 cont.

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22. (continued)

[1] Morrison, Michael L., Bruce G. Marcot, and R. William Mannan. 1992. *Wildlife-Habitat Relationships*. The University of Wisconsin Press. Madison, Wisconsin.

[2] Rasmussen, Larry and Patrick Wright. 1990. *Wildlife Impact Assessment - John Day Project, Oregon and Washington (Annual Report 1989)*. U.S. Fish and Wildlife Service, Portland Field Office. Prepared for the U.S. Department of Energy, Bonneville Power Administration, Division of Fish and Wildlife. Project No. 88-12.

23. The restoration of shrub-steppe habitat on 21,684 to 29,186 acres was not addressed in detail because mitigation needs and requirements are uncertain at this time (see previous responses). Furthermore, the "potential long-term benefit that could occur for some native shrub-steppe dependent species" assumes that the area would be restored, maintained, managed, and preserved as native upland vegetation to support these species. These are important issues that were not necessary to resolve for the decision resulting from this Phase 1 evaluation.

Appendix B includes numerous species that are identified as threatened, endangered, proposed, candidate, or species of concern under the Federal Endangered Species Act (ESA), as well as numerous species recognized by Washington and Oregon. Due to the large number of species identified, the discussions in the reconnaissance-level Phase 1 evaluation were limited to those species for which the U.S. Army Corps of Engineers (USACE) would be obligated to address under ESA. Furthermore, as previously mentioned, the potential "benefits" would be based on numerous assumptions about issues that would require resolution at a later date. See Response to Comment No. 2 for further discussion on this matter.

considered a potential short-term benefit worth mentioning, it is surely worth mentioning the potential long-term benefits that could occur for some native shrub-steppe dependent species if historic uplands were dewatered and restored to native vegetation.

Attachment B lists the following species found in the Project Area that are state endangered (SE), state candidate (SC), federal candidate (FC), and federal species of concern (FSC) that could benefit from the restoration of inundated uplands: peregrine falcon (SE), pygmy rabbit (SE, FSC), Washington ground squirrel (SC, FC), burrowing owl (SC, FSC), loggerhead shrike (SC, FSC), sage sparrow (SC), Merriam's shrew (SC), and striped whipsnake (SC). Washington State has just closed the hunting season for both black and white-tailed jackrabbits due to concerns over declining populations, and both of these species could also benefit from upland restoration in the Project Area.

24

- Creating and drawing down a reservoir would result in many negative impacts besides the loss of artificially created wetlands. When the reservoir was created riparian habitats were flooded and lost. Now, after over 20 years post-dam construction some new functioning riparian area has established. Drawing down the reservoir will again result in a loss of riparian habitat. It will take another 20-year-plus period for new functioning riparian habitat to re-establish in the drawdown zone. The net result is many years of hardship for riparian dependent species in this stretch of the Columbia River.

Pages 44-45 (10.4. Miscellaneous Impacts) provide good examples of impacts to wildlife that occur from creating and drawing down a reservoir besides the loss of artificial wetlands. These impacts include taking 2-15 years for the John Day Pool to attain equilibrium, the silting in of downstream wetlands, the potential release of environmental contaminants bound to existing sediments, and the placement of riprap on 50 of the 152 miles of exterior shoreline of a new river channel. Island erosion is another good example of an impact caused by raising and lowering a reservoir.

These are serious or potentially serious impacts that occur whether pre or post-dam conditions are managed for through mitigation. They are arguably just as important, or more important, than the amount of artificial wetlands that would be lost through a drawdown.

25

- Pre-dam conditions, including the historic wetland area present and the historic hydrograph, should be considered. Aquatic areas and adjacent riparian zones are a valuable and unique habitat for wildlife in the desert area of eastern Washington. But that does not mean that in every case we should automatically try to maintain or create artificial wetlands in every upland location possible. High quality shrub-steppe areas adjacent to wetland and riparian areas are also rare in eastern Washington. Perhaps an area that is currently largemouth bass and duck brood habitat would best be managed as the striped whipsnake or jackrabbit habitat that is was prior to dam construction.

A pre-dam hydrograph for the Columbia River is not provided in the document. In trying to assess the various alternatives it would be helpful to see how the pre-dam

24. Comment noted.

25. The numerous flood-control and other reservoir projects within the Columbia and Snake River system preclude restoration to such conditions under a drawdown scenario . Figure 4-3 of the Engineering Technical Appendix Flood Control Evaluation Section, however, does include a 1948 flood hydrograph that includes regulation from Grand Coulee Dam only. None of the alternatives would restore a "historic hydrograph" to this reach of the Columbia River, therefore, it was not considered relevant to this evaluation.

hydrology of the Columbia River would compare to the hydrology under the various alternatives, with flood control and without flood control.

A severe "bathtub ring" effect could potentially be one of the greatest overall negative impacts to wildlife. There is no mention of how water releases from McNary Dam would or could be managed. It seems like this would have a major effect on the establishment of riparian habitat in the drawdown zone. Large rapid fluctuations in water levels below Priest Rapids Dam negatively affect riparian habitat establishment in that stretch of the River. A discussion of how water could or would be released from McNary Dam would be useful.

26 • Potential waterfowl losses resulting from a drawdown need to be put into context. Questions that are just as important as, "How many waterfowl will be lost?", include: How many waterfowl were there pre-reservoir and how would this compare to waterfowl numbers post-drawdown? How many other species suffered losses when the reservoir was created? How many species could benefit if their former habitats were no longer inundated through drawdown? These questions are not addressed in the document but will very likely be asked by the public and the agencies responsible for mitigation.

When the reservoir was constructed local Canada geese were a major concern. Currently the statewide population of local Canada geese is much greater. Early season hunts on the Columbia River are even being held as a way to control increasing nuisance goose populations. Even though waterfowl hunting and viewing provide important social and economic values, today we might want to look more closely at other species when evaluating drawdown effects.

Specific Comments

27 Page 34; Threemile Island. The nesting chronology of gulls on Threemile Island is irrelevant to evaluating the site-specific impact of losing island habitat and could be dropped from the document. Just because we have some data on a species in the Project Area, like shorebirds or waterfowl, does not automatically mean that it is relevant or that those particular species are more important than any others. We may want to give more consideration to potential impacts, good and bad, that could occur to species we have not traditionally collected data on.

28 Pages 38-39, 10.3.1. Waterfowl. *"The anticipated loss of habitat would significantly impact resident and migratory wildlife resources of the Columbia Basin."* This is an example of the over-generalization sometimes found in the document. Something like, "The loss of artificially created wetland habitat could significantly impact resident and migratory waterfowl", would be more accurate.

The amount of Canada goose and diving duck habitat present before reservoir construction is not discussed or provided. It would be useful to compare the amount of

Corps of Engineers Response

26. Specific questions such as these are not appropriate for this Phase 1 analysis. A detailed Phase 2 assessment would include these issues. It would also include a discussion of the goals and strategies of the *North American Waterfowl Management Plan* and the management of resident Canada geese (currently the subject of an Environmental Impact Statement by the U.S. Fish and Wildlife Service and the Wildlife Services Program of the U.S. Department of Agriculture (Animal and Plant Health and Inspection Service).

27. This Phase 1 wildlife evaluation was limited to existing, available information only. It was not intended to be a comprehensive, all-encompassing treatise on the effects of a drawdown on all wildlife species. A Phase 2 assessment would consider more individual species in detail, and would be considerably more in-depth. Because of a lack of specific data on individual species in the project area, wildlife groups (e.g., raptors, shorebirds, and terrestrial furbearers) are discussed, giving examples of species within these groups based on life-history and habitat requirements (e.g., western painted turtle, long-toed salamander, hairy woodpecker). In no way is this format for discussion intended to imply that any particular species are more important than others, nor to imply that impacts to some species are more relevant than others.

28. In a Habitat Evaluation Procedures (HEP) evaluation of pre- and post-construction habitat conditions of the John Day Dam, Rasmussen and Wright (1990)[3] reported an increase of 14,398 habitat units for lesser scaup, a loss of 8,010 habitat units for Canada goose, and a loss of 7,399 habitat units for mallard. A detailed wildlife evaluation such as HEP, was not appropriate for this Phase 1 analysis. See also, response to Comments No. 6 and 7.

[3] Rasmussen, Larry and Patrick Wright. 1990. *Wildlife Impact Assessment - John Day Project, Oregon and Washington (Annual Report 1989)*. U.S. Fish and Wildlife Service, Portland Field Office. Prepared for the U.S. Department of Energy, Bonneville Power Administration, Division of Fish and Wildlife. Project No. 88-12.

Canada goose and diving duck habitat that existed pre-dam to the amount of Canada goose and diving duck habitat that would exist post-drawdown. This concept is not addressed.

29 Page 39, 10.3.1. Waterfowl. *"The fluctuations with flood control, however, would mimic more natural seasonal fluctuations."* Providing the pre-dam hydrograph would allow the reader to better evaluate this statement.

30 Page 45. Section 11. Mitigation Opportunities. *"...for the purpose of this reconnaissance assessment, it is assumed that present conditions would be the goal of any mitigation efforts."* Managing for artificial reservoir conditions through mitigation is not in the best interest of all wildlife species in the Columbia Basin. Given the fact that we are currently mitigating for pre-dam habitat conditions, this concept needs to be carefully considered.

31 Page 46. Section 11. Mitigation Opportunities. Seeding wetland plants like cattail is probably not necessary. Many wetland plants will likely establish on their own. Resources would be better directed towards other restoration activities.

32 Page 47. Section 11. Mitigation Opportunities. *"...due to sedimentation and other factors, it is highly unlikely that habitats that existed prior to inundation behind the John Day Dam could be achieved following drawdown."* This is a very important concept. It is the reason why a larger mitigation area is required than the area that was actually impacted by inundation.

33 Attachment A. Hydrological Data from the John Day Drawdown Study. A pre-dam hydrograph is not included in this Attachment but would be very useful.

Attachment C, Planning Aid Letter (PAL) Comments

34 Page 21. Without the Project, Spillway Crest and Natural River. *"Major adverse impacts to wildlife and their associated habitats are expected with the proposed reservoir drawdowns."* This is the same type of over-generalization that is sometimes found in the main body of the document. The loss of artificial wetlands is emphasized in this section of the PAL. Some wetland dependent wildlife species that have become dependent on the artificially created wetlands would be negatively impacted. Other rare native upland dependent species could potentially benefit from a drawdown. Other drawdown impacts would be just as important, or perhaps more important, than the loss of artificially created wetlands.

Page 23. Attachment C. Planning Aid Letter. As discussed in this section, construction of the proposed irrigation canals could have adverse impacts to wildlife. Besides habitat that would be directly lost due to canal construction, the canals would be very effective barriers

29. See response number 25.

30. As previously mentioned, the determination of any mitigation requirements was not required to meet the goals of the Phase I study.

31. Seeding and planting would be a restoration effort. Without it, it is highly likely that weeds and other exotic vegetation would become established on the site and would preclude desirable, native species.

32. See response number 30.

33. A 1948 hydrograph (i.e., pre-John Day dam) is included in the evaluation of the hydrologic and hydraulic characteristics of the project (See Flood Control Evaluation Section of the Engineering Technical Appendix). However, the pre-dam hydrograph of this reach of the Columbia River is not particularly relevant to this study due to the considerable modifications that have been made in the Columbia and Snake River systems (e.g., other dams and reservoirs, as well as irrigation and other water withdrawals). Consequently, a pre-dam hydrologic regime would never be attained on the Columbia River following a drawdown of the John Day Dam.

34. Comments on Attachment C, Planning Aid Letter (PAL) were forwarded to the US Fish and Wildlife Service. This document was considered a final product and included as an attachment to the Wildlife Resources section of the Technical Appendix.

for some terrestrial species of wildlife and prevent them from moving between shrub-steppe and riparian/wetland habitats in this stretch of the River.

Page 25. Recommendation 1. Including wildlife and habitats that could potentially benefit from a drawdown would be useful. Perhaps some areas that were artificially inundated should be restored to native upland vegetation to benefit some threatened, endangered, or rare upland dependent wildlife species. High quality native shrub-steppe habitat adjacent to wetland/riparian habitat is also rare in eastern Washington.

34 cont.

Page 25. Recommendation 2a. Are there any rare wildlife species that might be negatively impacted by maintaining artificial wetlands on sites that were uplands prior to dam construction?

Page 25. Recommendations 2b. Trying to maintain functioning riparian habitat through artificial irrigation would be a highly questionable activity. Operation and maintenance costs would be very high in relation to the amount of wildlife benefits gained. Restoring riparian habitat in areas where it would be naturally sustainable would be much more effective even if it was off-site.

Comments concerning:

"Summary – Salmon Recovery through ~~John Day Reservoir – John~~ Day Drawdown Phase 1 Study"

by John H Clark, 4240 Jimtown Road, Helena, Montana 59602

John Day Dam is one of the 400 dams in place in the Columbia River Basin and is one of 28 major federal dams. John Day Dam forms the longest, slowest, warmest, and deadliest reservoir for salmon and steelhead on the entire Columbia River system. Supporters of the John Day drawdown approach believe lowering the reservoir will improve conditions for salmon and steelhead by:

- Reducing high water temperatures associated with the impoundment,
- Exposing extensive spawning habitat similar to the currently highly productive Hanford Reach spawning grounds,
- Reducing predator impacts on migrating juvenile salmonids, and
- Increasing river flows, thereby significantly increasing juvenile salmonid smolt survival rates,

The *Summary - Salmon Recovery through John Day Reservoir - John Day Drawdown Phase 1 Study*, issued in January 2000, includes a section entitled: *"Potential Impacts and Benefits*" on pages 20-22. This section of the summary report is a poor representation of potential impacts and benefits, because it is decidedly biased, ending with the statement that if drawdown were undertaken, the result would be about one half the current number of harvestable fish. Such a statement could lead a reader to conclude that benefits to anadromous salmon and users of this resource are negative. However, as explained below, there is little credible basis for this statement and the Corps should redo this section of the report and provide a credible analysis of the potential benefits to salmonids and users of these resources.

1 This estimate or forecast for the future can be reached if one assumes that the spawning stock in the new-found river due to drawdown would reach 55,000 fall chinook (10-fold current spawning stock size) which would then support a harvest level of 74,000 fish under an assumed average production rate of about 2.35 fish per spawner. This level of apparent future harvestable production of 74,000 fall fish per year is about one half that of current harvestable production, apparently comprised of about 5,000 natural fish and 144,000 hatchery fall fish per year. This assumed production estimate of 2.35 is biased low and does not compare well with existing production values for fall chinook in the Columbia River. Average observed production rates for other up-river Columbia River fall chinook are as follows (values as listed in PATH 11/16/98 report):

- Snake River fall chinook: BY 1964-1991: **5.834** and
- Hanford Reach fall chinook: BY 1964-1991: **4.881**.

Corps of Engineers Response

1. The recruits per spawner rate that you quote for Hanford Reach/Yakima River fall chinook (i.e., 4.881) from PATH's 1998 Final Report is an average over many years (i.e., 1964-1991) during which many significant changes to the configuration of the Columbia River hydropower system took place. In addition, there are no documented estimates of natural spawner abundance in the John Day pool. The estimates that the Corps developed of changes in production potential below McNary Dam for alternative John Day drawdown scenarios are based on changes in estimated quantity of potential spawning habitat.

The Corps used a set of assumptions, as explained in the Phase I report, to convert estimates of potential spawning habitat into associated estimates of maximum spawner abundance under current and drawdown conditions. Fecundity, egg-to-smolt survival, and juvenile migrant survival estimates were used to convert the spawner estimates into estimates of smolts recruited to the mouth of the Columbia River.

Subsequent to PATH's 1998 Final Report, they produced a separate report specific to fall chinook salmon (i.e., the PATH Decision Analysis Report for Snake River Fall Chinook). This report looked at the range of smolt-to-adult return (SAR) rates for Upriver Bright fall chinook that occurred from 1981 through 1992. In Section A.3 "Analysis of Smolt-Adult Return Rates for Columbia River Fall Chinook", PATH concluded regarding the "Upper River Bright Run" (i.e., the Hanford Reach/Yakima River fall chinook population) that "SAR (Bonn/Bonn) estimates ranged from 0.37% to 3.29%, averaging 1.83%…"

Rather than the 3.4% SAR rate used by the Corps in the draft Phase I report, the Corps will use in the final report the high-end value in PATH's range of SARs (i.e., 3.29%), which should represent the best available estimate of production potential for these fish under good ocean conditions. In addition, we intend to increase the estimated total number of returns produced by naturally spawning fall chinook by a factor of 1.56 (based on Chapman et al. 1994, as referenced in the Phase I report) to indicate a survival advantage for naturally produced smolts over mitigation hatchery releases. This, in effect, will result in a SAR rate for naturally produced fall chinook of 5.13%.

1 cont. Use of the average observed production value for these two stocks of 5.4 with the estimated 55,000 spawners would have resulted in an estimate of harvestable production of about 240,000 fish, not 74,000 fish. The simple use of an existing average value for production rate rather than use of an unsupported value, changes the prediction from 74,000 fall fish to about 240,000 fall fish, a sizable increase over the existing condition rather than a decrease over the existing condition. Further, it is not apparent why hatchery production would cease and hence it may be reasonable to assume a continuing harvestable surplus of 144,000 hatchery fish for a total of almost 400,000 fish or over 2.5-fold the existing condition of 149,000 harvestable fish per year.

2 On page 20, the report implies that any of the drawdown alternatives are not compatible with the juvenile transportation program. While it is obvious that barges could not be used for juvenile salmon transportation were John Day pool drawn down, the report should be clear that the program could be continued with the use of trucks as occurs to some extent already. Again, this section should provide an unbiased outlook, not merely identify roadblocks and problems.

3 The *Summary* indicates that benefits to ESA listed stocks are minor. However, the *Summary* states modeling indicates the Snake River fall stock would increase to 6,179 fish if low fish transportation effectiveness is assumed. The report should have pointed out that if that number is reached, this stock will have recovered and be eligible for ESA de-listing, hardly a minor result. If transportation is assumed highly effective, no benefits are likely to occur for ESA listed stocks, according to the *Summary*. The complete reliance on hypothesis testing concerning the effectiveness of transportation for modeling the potential benefits of drawdown is a serious flaw in the analytical approach.

Such an analytic approach begs several key questions including:

1. What type of survival benefits might be expected with significant decreases in water temperatures?

2. What type of survival benefits might be expected with significant increases in smolt down-river migration rates?

3. What type of survival benefits might be associated with reduced levels of predation?

These are the types of benefits that proponents of drawdown have been suggesting would occur since the idea was developed in the early 1990's. Why is it that a technical document purportedly intended to identify potential benefits and costs associated with drawdown as a recovery tool for ESA listed salmonid stocks has ignored these potential benefits and instead provides biased forecasts concerning potential benefits to fishery users?

The *Recommendations* section of the report, suggests no need for phase two of the study based on several factors, including:

1. drawdown would contribute little to survival and recovery of listed Snake River stocks; and,

2. a forecasted decrease in the population level of Hanford Reach chinook.

These potential fish and fishery benefits statements are biased and not based upon best available scientific and commercial data. The analytic approach taken with regard to potential benefits to ESA listed stocks is faulty and biased. The approach taken with regard to non-listed stocks

Corps of Engineers Response

1. (continued)
The effect of these changes regarding potential increases in fall chinook production below McNary Dam under drawdown to natural river channel conditions is that a potential maximum 55,000 spawners could, under conditions of good survival in the ocean, produce an estimated 194,500 total returns. This would include a harvestable surplus of 139,500 fish. This figure is only slightly less than the sum (i.e., 148,600 fish) of the maximum potential harvestable surplus of fall chinook produced below McNary Dam under current reservoir conditions (10,600 fish) plus the estimated production of harvestable fish from the associated mitigation hatchery program (138,000 fish), under conditions of good ocean survival.

2. Truck transportation cannot be used for Spring chinook due to the large volume of fish passing. Although we truck the small numbers of fish at the beginning and end of the run, during most of the run there are far too many fish to truck. The Phase I report has been edited to indicate that transportation of Snake River fall chinook salmon, which occurs primarily by truck between late June and October, could continue under John Day drawdown conditions to the extent that collection of juveniles in the Snake River continued.

3. The potential increase of 6,179 Snake River fall chinook spawners at equilibrium population level under John Day drawdown to natural river channel without Snake River Drawdown assumes low fish transportation effectiveness. Under this assumption, termination of transportation alone, without John Day drawdown, would increase Snake River fall chinook returns by 5,631 spawners at equilibrium population level. The net increase in Snake River fall chinook resulting from John Day drawdown is 548 spawners at equilibrium population level. Since this figure assumes no impacts of harvest, it is not directly comparable to the NMFS recovery goal that you quote of 2,500 additional returns to the Snake River after harvest. The PATH analysis approach indicated that John Day drawdown to natural river channel provided the highest level of benefits among the drawdown alternatives considered, and that it increased the probability of recovery for Snake River fall chinook by only four percentage points; a minor benefit.

There are clearly arguments for and against any analytical approach that might be taken to estimate potential biological benefits that might accrue from drawdown of John Day Reservoir. A life-cycle modeling approach was the best means by which the myriad of complex relationships among chinook life history stages and associated environmental circumstances could be integrated so that results could be reasonably compared. The Corps elected to adopt the life-cycle modeling analytical approach developed as a

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Corps of Engineers Response

3. (continued)

result of the Regional PATH planning effort, which focused on the assessment of potential biological benefits associated with drawdown of mainstem Snake River and Columbia River dams. This approach included consideration of the effects of transportation.

The results obtained from the PATH analytical approach were sensitive to assumptions regarding effects of transportation. Benefits of drawdown were maximized under assumptions of low survival rates for transported fish. In an effort to estimate the maximum potential biological benefits from drawdown, the Corps made modeling assumptions consistent with maximizing those benefits. To provide a balanced perspective, it was then incumbent upon the Corps to explain the approach that it had taken, and to present the results in light of the assumptions that had been made.

4. The Water Quality Section (under the Engineering and Technical Appendix, Volume 2) of the Phase I report indicates that the major effect of impoundment by John Day Dam on historic water temperatures in the John Day reach was to delay warming in the spring and cooling in the fall. Because of the relatively rapid exchange rate for the reservoir's volume, there is very little change (e.g., 3□ to 5□C) in temperature with depth, even during summer. An analysis of PIT tag data by Skalski and Townsend (Attachment D to the Biological/Environmental Technical Appendix, Aquatic Resources Section of the Phase I report) for juvenile fish passing through the John Day reach showed no correlation between juvenile migrant survival probabilities and associated river operations or conditions, including water temperature, in 23 of 24 independent analyses during 1998. The Phase I report concludes that the effects of drawdown on water temperature are expected to be minimal and of little benefit to aquatic life. It points out that the possibility of higher annual peak temperatures may actually be detrimental.

Migration rates for smolts are anticipated to increase under drawdown conditions by two to three days for Snake River spring/summer and fall chinook, respectively. While no relationship between smolt travel time and survival rate has yet been documented, assumptions associated with the PATH analysis approach (i.e., based on reduced losses to predation) indicated that juvenile survival might increase by as much as 6% and 2% for spring/summer and fall chinook, respectively, in response to the estimated decrease in travel time.

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Corps of Engineers Response

4. (continued)

Benefits that might accrue as a result of reduced predation on juvenile salmonids under drawdown conditions are unknown. Analyses of likely changes in populations of important predators suggested that northern pikeminnow, smallmouth bass, and channel catfish are likely to re-distribute in response to habitat changes, but are not likely to decrease in abundance. Walleye, and perhaps smallmouth bass, may decrease in abundance. A recent report by Zimmerman and Ward in Transactions of the American Fisheries Society (Volume 128, Number 6, November 1999, pages 995-1007) indicated loss of juvenile salmonids to predation by northern pikeminnow, the most important predatory fish in the mainstem Columbia River, was much higher in the free-flowing reaches of the lower Columbia River below Bonneville Dam than it was in John Day Reservoir from 1990-1996.

5. The Phase I reconnaissance-level study presents the currently available information and analyses regarding potential changes in water temperature, decreases in smolt travel time, and potential changes in predator populations along with an assessment of their potential biological ramifications.

While it is true that many of the assumptions used by the Corps in performing analyses under the Phase I study are unsubstantiated, in each case the Corps elected to use those assumptions that would result in maximizing potential biological benefits from drawdown of John Day Reservoir. For example, we assumed that survival of juvenile salmon migrants would increase with decreased travel time as a result of improved environmental conditions and decreased losses to predation, even though the relationship between travel time and juvenile survival has not been substantiated, analysis of potential changes in water temperature indicated that they were unlikely to change significantly, and analysis of potential changes in predator abundance indicated little change.

The Corps was directed by Congress to conduct a one-year reconnaissance study to summarize existing information pertinent to the potential benefits, impacts, and costs associated with drawdown of the John Day Reservoir so that this information could be used to determine if further study was warranted. We believe that the information provided in the Phase I report regarding maximum potential biological benefits for ESA listed anadromous fish species together with the associated minimized estimates of potential environmental impacts and costs is sufficient to permit Congress to make a decision regarding the need for further study.

5 cont.

(potential future spawning stock in river downstream of McNary) is faulty and uses unsubstantiated assumptions that completely under-estimates potential fishery benefits. Unless these short-comings can be completely resolved within the phase one study report, a phase two study should be required.

It may be that costs out-weigh potential benefits derived from the drawdown of John Day pool. However, before that decision is reached, it is only fair that a realistic approach be taken to potential benefits as the current report consistently under values and under rates potential benefits through use of a highly biased approach. This problem needs to be rectified before the issue of drawdown of John Day pool can be adequately addressed by the public and by other governmental agencies.

US Army Corps
of Engineers®
Portland District

Please provide your comments on the John Day Drawdown Phase I Study!

1 You should look at what effects on power production ~~the~~ of McNary Dam & would be with a John Day drawdown.

2 and also what modifications would have to be made at McNary for adult fish passage.

Also adult salmon move faster now than when the river was wild.

3 I would like to know what % of adult salmon could not navigate Celilo falls?. (Continue on back if needed)

My mailing address is:

Del Lathim
PO Box 3222
Pasco WA 99302

Telephone: 509 547 6329

The John Day Draft Report is available on the web:
http://www.nwp.usace.army.mil/pm/projects/jddds

Send comments by:
E-mail: cenwpjddstudy@nwp01.usace.army.mil
Fax: (503) 808-4515
Mail: U.S. Army Engineer District, Portland, Corps of Engineers, Attn: John Day Drawdown Study, P.O. Box 2946, Portland, Oregon 97208-2946 (This form is a mailer—just turn over, fold and stamp.)

PRIVACY ACT STATEMENT: 16 USC, Section 839, Chap. 12H, grants authority to gather the information on this form. The principal purpose for completing this information is to allow agency follow-up, if necessary, to comments made on this form. Routine use of this information includes updating of existing mailing lists. Failure to provide this identification would prevent response. Your comments, however, would be forwarded with others in the Final Report.

1. Changes in power production at McNary Dam are quantified in this analysis.

2. Modifications of the adult fish passage system have been included in the costs estimates for the John Day drawdown.

3. It is unknown what percentage of fish were unable to navigate Celilo falls, as there is no distinction in any historical data that differentiates harvest from other salmon fatalities.

DANIEL M. OGDEN, JR., PH.D.
Consultant - Trainer / Public Policy - Natural Resources
3118 N.E. ROYAL OAKS DRIVE
VANCOUVER, WASHINGTON 98662
(206) 254-8886

February 11, 2000

U.S. Army, Corps of Engineers, Portland, District
Attention: John Day Drawdown Study
P.O. Box 2946
Portland, OR 97208-2946

Ladies and Gentlemen:

Thank you for sending me a copy of the Summary "Salmon Recovery through John Day Reservoir, John Day Drawdown Phase I Study."

I strongly support your recommendation to discontinue further study of drawing down John Day Reservoir. The evidence you have provided in the Phase I study makes clear that the losses in hydroelectric power, navigation, irrigation, domestic and industrial water supplies, and outdoor recreation are both demonstrable and enormous while the benefits to anadramous fishes are slight and highly speculative. The losses outweigh the gains many times over.

1 My only suggestion would be in regard to outdoor recreation. I feel that benefits of the natural river option are exaggerated. I doubt if there would be any significant recreation use of the natural flow river. The current variety of recreational uses, especially swimming, windsurfing, fishing, picnicking, and camping will simply shift to the McNary reservoir to the east and The Dalles reservoir to the west, leaving the present facilities not only unusable but unused. The speculation about open river recreation use seems to me to rest on flimsy assumptions.

Sincerely,

Daniel M. Ogden

Daniel M. Ogden, Jr.

Corps of Engineers Response

1. The scope of the Phase I study required an analysis that relied primarily on existing data. If a Phase II study is pursued, a far more detailed recreation analysis would be performed, with data specifically related to recreation at and around the John Day reservoir.

Potlatch

Potlatch Corporation

244 California Street, Suite 610
San Francisco, California 94111
Telephone (415) 956-2975
Panafax (415) 956-2971

March 28, 2000

US Army Corps of Engineers
Portland District
Attention: John Day Drawdown Study
P. O. Box 2946
Portland, OR 97208-2946

RE: Comments of Potlatch Corporation on the John Day Drawdown Study

Potlatch Corporation (Potlatch) is a moderate sized forest products company with operations in the Pacific Northwest in both Idaho and Oregon. In Oregon the company grows hybrid cottonwood trees on 22,000 acres of drip irrigated land. The first crop is nearing harvestable age and once a rotation is established there will be an annual harvest of several thousand acres. The Boardman, Oregon, operation is critically dependent on a continuous supply of water from the reservoir behind John Day dam, the farm's cost structure is dependent on a supply of competitive cost electricity, and its potential alternatives for product transportation can be affected by the availability of barge transport up and down the river.

In Idaho the company owns 600,000 acres of timberland and operates two sawmills, two plywood plants, a particleboard plant, and a large pulp, paperboard, and tissue mill. One plywood plant, one sawmill, and the pulp, paper, and paperboard mill are located in the Clearwater River Valley; the sawmill and the pulp, paperboard, and tissue mill are located in Lewiston. The Clearwater and Snake Rivers are used by the Lewiston operations as a water source, as a place for effluent discharge, and as a major transportation artery for products and raw materials. Paper products, pulp, chips, and logs are moved on the rivers.

Concurrence with Corps Conclusion. Potlatch agrees with the Corps of Engineers' conclusion that the comparison of benefits and costs associated with either drawdown of the John Day reservoir or the removal of John Day dam leads to a recommendation that the issue not be studied further. The information presented by the Corps in Potlatch's view strongly supports no further examination or consideration of either drawdown or dam removal at John Day. Interestingly in presenting the information Potlatch believes that the Corps significantly overstated the benefits of the alternatives and understated the costs. Should through analysis of comments a decision

be reached for further study, a decision Potlatch believes to be inappropriate, unnecessary, and a waste of resources including time, personnel, and money, Potlatch recommends that any further analysis more correctly reflect the presently overstated benefits and understated costs. The following comments on the study summary are intended to address issues that should be addressed should there be any further study of this issue.

Flood Control. The study examines five separate historic flood events (1948, 1974, 1982, 1996, and 1997) but does not include larger historic floods before Grand Coulee and Bonneville dams were built. Such floods also should be considered. Given that the recent floods came very close to flooding Portland and the 1948 flood eliminated the community of Vanport, the Corps likely should have concluded that the alternatives not including a flood control option virtually guarantee a flood disaster in the Lower Columbia River area. It seems not to be a question of if there will be a disastrous flood, but when, how frequently, and how damaging if the flood control capability at John Day is lost. 1

Additionally, with significantly fluctuating levels in the reservoir, what public safety problems may exist? Would a public warning system be required when the project goes into a flood control mode with an expectation of a water level rise of tens of feet? Is there not a potential for drowning? And what effect might significantly fluctuating levels, even if only annual, have on the flora and fauna of the reservoir itself? In any of the alternatives studied, the reservoir mostly will be dry and the flora and fauna will change.

Navigation and Transportation. The discussion of navigation barely touches the implications of a cessation of barge transportation above John Day dam. The concept of a newly dredged channel through the lowered reservoir makes the assumption that McNary dam remains so that barges could reach the Tri Cities and for those barges destined for Lewiston, that the four Lower Snake River dams remain. The economics of a newly dredged channel will be dependent on many other factors than the cost of dredging, including the volume of traffic, any investment in new barges, and whether Portland remains a major ocean shipping point. Such interconnectedness with other factors makes evaluating the John Day issue difficult as a separate subject. 2

Elimination of barge traffic from Lewiston and the Tri Cities is expected to have a devastating effect on the Port of Portland. The viability of a port is dependent on producing sufficient shipments to justify ocean-going ships to make calls at the port. In Portland's case the economics of rail and truck transport will divert traffic to Puget Sound ports, effectively making Portland non-competitive. For Portland there will be a loss of jobs and a loss of utilization of facilities with all the related impacts that ricochet through a community. To the extent that the shipments continue at a Puget Sound port, there will be some transfer of jobs and there may be additional investment required for storage, loading and unloading.

Corps of Engineers Response

1. A more detailed analysis of the prevented flood damages is not required to support the goals of the Phase I study. Also, a decision to not have flood control capability at John Day would not be a decision to abandon flood control in general. An analysis of other means of providing equivalent flood control would likely be pursued if a Phase II study is initiated.

An analysis of the effects of drawdown on the local flora and fauna is presented in the Biological/Environmental Technical Appendix.

2. These are a number of completely valid comments and concerns regarding transportation impacts, and would be addressed if a Phase II study is pursued, but are outside the scope of the Phase I study.

The reasons that the Port of Portland will lose its attractiveness to shippers without barges on the Columbia and Snake Rivers include the following:

1) Ships calling at Portland also call in Puget Sound, and avoiding a call at Portland saves several additional days per trip. Ships going to the Far East use the Great Circle route, which entails sailing north from the Straits of Juan de Fuca. Avoiding Portland from the shipping company perspective saves sailing south to Portland and back, bar and river pilot costs, and time in port. Over a year the time saving associated with not stopping in Portland provides for an additional round trip across the Pacific Ocean for a ship with all the associated economic benefits.

2) In Puget Sound many more ships call, and direct service to the desired port in the Far East is much more likely. From Portland the likelihood of transfer of goods to another vessel in a foreign port is much higher. With more handling in transit comes more damage to products, but more importantly, transshipment increases the risk of timely connecting to feeder vessels, which imperils promised delivery dates to customers.

3) In Puget Sound ports the availability of more ships and shipping companies from which to choose enhances competition and keeps costs lower.

2 cont.

The reason Portland remains a viable port in the face of the above disadvantages is the existence of the barging system on the Columbia and Snake Rivers. This inland barge transportation system is low cost, damage free, efficient and reliable. Its loss will mark the end of Portland as a significant seaport. From Potlatch's perspective, without barge availability in Lewiston, products will go to Puget Sound ports for shipment overseas because costs would be lower and choice of shipper greater.

Transportation is a major cost for most products, particularly commodities like grain. In the forest products industry transportation is the third largest cost component, following wood and labor. When a large cost component increases significantly, the economic viability of that product in a competitive market may be in question. The products barged on the river – grain, forest products, oil, etc. – are in competitive markets; increased costs cannot be passed on to customers. The effects of increased costs are lower margins, less competitiveness, lower market share, and additional job loss if activities decline or cease. When customers are lost by US firms, the firms that get them very often are foreign competitors, not other US firms.

Another area seemingly not addressed in the study is the environmental and human safety implications of a shift from barge to rail or truck. Rail cars and trucks carry less weight of goods than barges and thus many more engines, rail cars, and trucks will be needed to move the goods displaced from barges. Trains and trucks are far less fuel efficient on a weight transported per distance basis than barges.

The following data on fuel efficiency taken from a recent Port of Portland report (Container on Barge 2000, Port of Portland, 2000) summarizes the differences between barge, rail, and truck clearly.

Miles One Ton of Cargo Moved Per Gallon of Fuel:

Barge	514 miles
Rail	202 miles
Truck	59 miles

Beyond the economic costs of more trains, more trucks, highway improvements, rail improvements and more loading and unloading facilities, a train and truck based system will use much larger amounts of petroleum based fuel, a drain on natural resources. Combustion of the fuel will create increased air emissions of nitrogen oxides, sulfur dioxide, and carbon monoxide and dioxide. Carbon dioxide from the combustion of fossil fuel adds to the greenhouse gas effect.

The human safety aspect of a transfer of goods by train and truck instead of barge relates to the number of traffic accidents and related deaths and injuries as well as property damage. Barge accidents and related deaths and injuries are few relative to train and truck. The truck alternative for goods of raw materials shipped from Lewiston, Idaho, to the west or to Lewiston from the west is particularly unattractive because the highway west, Highway 12, is a winding two-lane road that goes through the center of a number of small towns. Among other facilities on Highway 12 are grammar schools and children across the highway going to and from school. The very frequent truck movements, both full and empty, add considerably to the likelihood of adverse human health effects through traffic accidents. Additionally the wildlife kill on Highway 12 in southeastern Washington is rather high; more trucks will lead to more wildlife deaths and injuries.

2 cont.

The economic effects on Potlatch Corporation of loss of barge transport on the Columbia and Snake River systems is estimated at five to nine million dollars annually solely for finished goods shipped from Lewiston. This estimate includes the present rate differences between rail and barge and an allowance for rate increases by rail when barge competition no longer exists. Rail rates are sure to rise when low cost barge competition is gone. In addition for the Lewiston operations the opportunities for raw material delivery by barge from the west, an important competitive factor, will disappear. These raw materials have included chips, petroleum, pulp for tissue manufacture, chemicals, etc. Deliveries of large equipment, such as a Yankee drier for a tissue paper manufacturing machine, will be made more difficult and more costly.

From the perspective of Potlatch's Boardman tree farm the anticipated transportation costs for product are also increased by loss of barging. One of the alternatives considered is shipment of fuel (70,000 tons per year) and chips (95,000 tons per year) to Lewiston. The present difference in barge and truck costs is about $10 per

ton or $1.6 million per year. Should products from the Boardman farm move west, comparable differences will exist.

An additional impact of shifting to rail and truck transport for Potlatch operations will be employment losses in the Port of Lewiston because loading and receipt will all be done at the facilities. The same result should occur with other shippers now using barges.

2 cont.

The six to ten million dollar annual costs identified for Potlatch and the recognition that materials and goods shipped to or from Potlatch operations are a small portion of all barge movements currently on the Columbia and Snake Rivers leads to the conclusion that the transportation cost increase of $43.8 million annually identified on page 25 of the summary may be well understated.

Irrigation from John Day Reservoir. The summary generally identifies some irrigation issues, but the next level of detail in irrigation considerations may add to the costs and certainly to the timing of any natural river or drawdown project at John Day. There are crops grown in the area irrigated by water from John Day Reservoir that have lives of several to many years and require water daily during the growing season. Loss of water to these crops causes plant death in a few days. An example of such a crop is the trees growing at Potlatch's Boardman farm. We presume other crops, such as orchards and grapes, may have similar issues if grown in the region.

The apparent solution to avoiding significant crop loss is to complete the alternate water delivery systems, such as the canals discussed in the summary, and make them operational prior to any changes in the reservoir. Very likely similar consideration must be given to all human and other uses of water. Such a requirement will cause a significant extension of project time and perhaps cost.

Should individual pumping stations be changed, as opposed to the canal proposal, costs may be considerably higher. Some very preliminary cost estimates for gathering water for one station from a drawdown ranged from about $20 million to install systems extending to the presumed location of the river to $50 million for a system of wells at the current reservoir bank. The pumping costs and electricity use would increase significantly. Building large numbers of extensions into the present reservoir seems unattractive and the Oregon restriction on wells identified in the summary may impact the well concept. There also is a question of silt in water drawn from the river; silt can clog drip irrigation systems and investment would be required to assure that silt is removed.

3

The summary table on page 25 of regional annual income reflects a benefit in the short term for irrigation and municipal and industrial water. This benefit is a perverse result of the economic analysis system used. Spending money for new projects when the existing infrastructure meets the need is a cost, not a benefit. The Corps in presenting such figures should make clear to all readers the economic peculiarities of the analysis system used.

Corps of Engineers Response

3. As indicated by your comments, it would be necessary to perform an individual analysis for each pumping station before a decision could be made to lower the reservoir to either spillway crest or natural river. With regard to regional impacts, an effort was made to clarify short-term versus long-term gains and losses. To a certain degree, however, it is left to the reader to consider the importance of short-term and long-term changes.

Power Supply. The summary discussion of hydro power operation only scratches the surface of the power supply and related energy supply problems if John Day disappeared. The loss of power supplies and transmission capability should be placed in the perspective of a region short of power supplies, such as the 24% likelihood of loss of power supply according to a recent December, 1999, Northwest Power Planning Council report. That report states that 3,000 MW of generation plant is needed to assure a reliable
4 supply of power in the next few years. Interestingly a similar, but not as adverse, situation on electric power supply and reliability in California was reported recently in testimony to the State Senate by the California Energy Commission. That a problem exists in California suggests that the state is a market for power, not so much a supply. The effect on the transmission system of loss of John Day generation may affect the transmission line south and make the California discussion moot. At a minimum the loss of voltage support from John Day will restrict the capacity of the transmission line to California.

Another power supply impact is the loss of water supply for cooling and
5 feedwater for the generating stations on John Day Reservoir (Hermiston, Coyote Springs, and Boardman Coal).

Traditional analysis of power supply shortage issues assume that generation will be developed to replace any lost or other shortages. Natural gas fired units are often identified as the form of generation to be used. In the evaluation of the cost of electricity generated with natural gas, recognize that gas prices are nearing $3.00 per MMBTU at
6 wholesale, which represents 2.4¢ per kilowatt-hour. When one adds operation, maintenance, capital, etc., as well, the cost of power becomes very high, much higher than in many recent studies. Also, there is a question of the capability of the gas transmission system to deliver the gas to the generating sites. Very likely the gas transmission system as well as the electric transmission system will need expansion in the region; this subject should be addressed if further evaluation is done.

The environmental implications of additional gas fired power generation are not addressed and should be. First, there is the large amount of natural gas that will be used.
7 Second will be the environmental impacts of construction of additional pipelines, transmission, and power plants. Third, there are significant quantities of pollutants – nitrogen oxides and carbon monoxide – as well as carbon dioxide, a greenhouse gas, emitted. There are important environmental tradeoffs that should be identified.

To avoid adverse economic impacts on the region the replacement power system
8 should be in place before disabling John Day power generation. A detailed timetable of activities including environmental review of projects, financing in a competitive economic environment and constructing facilities should be developed.

Benefits for Salmon. The difficulty with the analysis of benefits for fish is that the subject should be reviewed comprehensively, presumably as was intended with the

Corps of Engineers Response

Power Supply: Several important issues were raised in the comments and full treatment of these issues will be considered if the John Day study progresses to the next level of study. The following provides point-by-point responses to describe what has been done.

4. The hydropower analysis recognized that additional natural gas-fired combined cycle, combustion turbine power (CC) plants will need to be built in the future to cover additional load growth over time, and to replace lost generation if the John Day project is drawn down. The report concentrated on those additional CC plants, and the improvements to the transmission system, that will be needed if John Day was drawn down.

5. The costs to maintain cooling water supply was included as part of the costs associated with maintaining Municipal and Industrial water supply with the John Day Drawdown. These costs are included in the Engineering Technical Appendix - Water Supply Section.

6. Agree that these points should be addressed if additional studies are done. The analysis was limited to the medium forecast of natural gas prices and generation costs as defined by the Northwest Power Planning Council. Any future studies would update these costs and examine a wide range of high-medium-low projections of futures prices.

7. The Engineering Technical Appendix - Hydropower Operation and Regulation Section included estimations of air pollutant emissions associated with power generation on the West Coast with and without the John Day Drawdown. It was not possible to identify the impacts associated with specific gas line additions because it is not known exactly where replacement CC plants would be located.

8. A general schedule of when new generation facilities would be built was developed as part of the hydropower analysis. This schedule is summarized for two time periods on Table 16 of the Engineering Technical Appendix - Hydropower Operation and Regulation Section. A more detailed schedule would be developed if the next level of study is undertaken.

'*All-H Paper*'. Looking at John Day alone precludes any analysis of what programmatically can be done for fish and what activities are more cost effective in terms of a comparison of benefits and costs. There is no way to compare the benefit of eliminating Caspian terns in the lower Columbia River or raising specific salmon stocks
9 in nets in the estuary; this latter alternative has been done with Sacramento River stocks and achieved over 20% return to the river after the period salmon stay in the ocean. Other factors benefiting salmon, such as changed ocean conditions and restrictions on harvest, also are not recognized. These latter two factors are attributed to the large return of hatchery fish recently in an Oregon river: 40,000 of those hatchery fish were reported as killed deliberately by the state.

Conclusion. In the John Day case the costs of drawdown and natural river options far exceed the benefits as portrayed in the summary. Potlatch believes that the costs in the summary are significantly understated and the benefits to salmon probably overstated. The conclusion of the Corps is to recommend no further study; Potlatch concurs with the recommendation.. Should as a basis of comments additional study be recommended, Potlatch strongly urges the Corps to address the above listed issues that did not receive adequate, or perhaps any, evaluation in the study to date.

Sincerely yours,

WILLIAM J. NICHOLSON
Director, Corporate Energy & Environmental Services

WJN:ng

Corps of Engineers Response

9. The National Marine Fisheries Services Biological Opinion and the Federal Caucus All-H paper are scheduled to be finalized in the summer/fall of 2000.

May 1, 2000

U.S. Army Corps of Engineers
Portland District
ATTN: John Day Drawdown Study
P. O. Box 2946
Portland, OR 97208
FAX: (503) 808-4515
E-mail: CENWPjddstudy@nwp01.usace.army.mil

RE: Comments on John Day Drawdown Phase 1 Study

Dear Sirs and Mesdames:

The Save Our *Wild* Salmon ("SOS") coalition and the individual groups listed below submit this letter as formal comments on the U.S. Army Corps of Engineers' "Salmon Recovery through John Day Reservoir: John Day Drawdown, Phase I Study." SOS is a coalition of more than 50 sport fishing, commercial fishing, and conservation organizations – local, regional, and national – with more than more than 6,000,000 combined members and a goal to seek the restoration of salmon stocks throughout the Pacific Northwest to sustainably harvestable numbers. We thank you for this opportunity to comment.

SOS finds the Corps' conclusion against a Phase II study completely lacking in both legal and biological grounding. The Corps' conclusion that further study will likely show even less fish and economic benefit is irresponsible and unsubstantiated. In general, the Corps analysis lacks a balanced review of the effects of drawdown on fish resources in the Basin and we strongly urge the Corps to reassess its conclusion.

1 As you know, the National Environmental Policy Act ("NEPA"), 42 U.S.C. § 4331 *et seq.*, requires federal agencies to take a "hard look" at the consequences of their actions to ensure "that the agency, in reaching its decision, will have available, and will carefully consider, detailed information concerning significant environmental impacts," *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 349 (1989). Courts have found that the failure of a decision-maker to adequately assess and respond to sister agency recommendations supports a finding by the court that the decision-maker could not have fully considered and balanced environmental factors. *Sierra Club v. U.S. Army Corps of Engineers,* 701 F.2d 1011 (2nd Cir 1983).

The Corps' conclusions are ripe for such a finding because the conclusions simply ignore other agency recommendations regarding the drawdown of John Day. For example, the Independent Scientific Group ("ISG") in *Return to the River* (1996), and the Columbia River Inter-Tribal Fish Commission in *Wy-Kan-Ush-Mi Wa-Kish-Wit: Spirit of the Salmon* (1995) both identified a potential for large salmon and steelhead benefits by drawing down the John Day pool. The ISG specifically recommended a spillway crest drawdown. The Corps' conclusion also ignores biological issues raised by state and tribal fisheries biologists as well as the concerns of federal fisheries biologists at the National Marine Fisheries Service ("NMFS") and U.S. Fish and Wildlife Service ("USFW"). In fact, our understanding is that the Corps's decision in this regard was made without any input or discussion from sister agencies. Instead, the Corps ignored information it had from other agencies and made this decision in isolation. NEPA does not allow for such disregard and the Corps' decision is neither well-balanced nor well-considered.

Corps of Engineers Response

1. Before any decision would be made to draw down or remove John Day Dam, all public, agency and tribal coordination and documentation would be completed as part of the NEPA process. This Phase I level of study did not require NEPA. All public information meeting transcripts; comments; and congressional, tribal and agency coordination documents are included as attachments to the Public Involvement/Agency Coordination Appendix of the Phase I Study report.

The Corps' study also suffers from specific logical and biological failings. The study discussions are often confusing (see, e.g, flood control discussion at 12 and Sierra Club's comments to that effect), data used in the report is sometimes incomplete, and conclusions are drawn but not supported by the facts. Although our comments do not attempt to cover all instances of such failings, we have highlighted some obvious examples below.

1. The Corps Should Acknowledge that Eliminating Barging Is not a Detriment to John Day Drawdown -- The Corps states that drawing down John Day Reservoir could "eliminate[the] ability to transport fish." Phase I Study at 12. The Corps goes on to conclude that this potential elimination should be considered a negative impact of John Day drawdown. This simply does not make sense. First, it is unclear to us that barge transportation would cease if the plan includes dredging a new channel in the free-flowing portion of the John Day reach. Second, according to scientific peer reviews by the Columbia Basin Fish and Wildlife Authority (1992), an independent panel for the U.S. Fish and Wildlife Service (1994), the National Research Council (NRC, 1995), the Independent Scientific Group (ISG, 1996), the Independent Scientific Advisory Group (ISAB, 1998) which was co-sponsored by NMFS, and the Process for Analyzing and Testing Hypotheses (PATH, 1998), neither the current nor an expanded juvenile fish barging program can prevent the extirpation of Snake River Basin salmon and steelhead. After more than 20 years of attempting this form of transportation, we have yet to see it result in positive increases in salmon and steelhead populations. Accordingly, elimination of this fish transportation scheme should not necessarily be viewed as a negative impact for fishery resources. Instead, if John Day drawdown indeed discontinued fish barging, the action should be viewed as a benefit to salmon and steelhead.

2

2. The Corps Fails to Analyze the Effects of Drawdown if the Lower Snake River Dams are Partially Removed -- Currently, the Phase I study fails to consider the effect of drawing down John Day in a scenario where the four lower Snake River dams have also been partially removed. This failure limits the potential positive benefits a John Day drawdown might produce. We strongly urge the Corps to revise its analysis to include this examination.

3

3. The Corps Fails to Adequately Address the Effects of Drawdown on Adult Migration -- The Phase I study does address some new benefits from drawdown such as the availability of new spawning areas. However, the study completely ignores the positive changes the drawdown would have on the current system. For example, the study fails to address positive effects associated with decreased migration times and improved water quality. The report should be modified to address these issues.

4

4. The Corps Fails to Offer a Conclusion Regarding the Effects of Drawdown on Out-Migration -- In the discussion of the effects of drawdown on out-migration (p. 97) the Corps offers several possibilities, but draws no conclusion. Since migration timing and rate are critical components in the survival of anadromous salmonids, the Corps should place greater emphasis on studying this aspect of the drawdown effect. It appears that the report assumes that the impact of drawdown is proportional to the increase in velocity through the John Day reach. If so, this neglects to consider the possibility that out-migration rate is dependent on additional factors and may result in an underestimate of the drawdown benefit.

5

Corps of Engineers Response

2. Barge navigation through the 76-mile John Day reach under drawdown to natural river conditions would be difficult and dangerous during the spring even with the use of relatively small craft because of the currents that would be encountered. During summer and fall, low flow levels would also result in difficult and dangerous operating conditions. Development of reliable transportation by barge under these conditions is not practical. However, the Corps has edited the Phase I report to indicate that transportation of Snake River fall chinook salmon, which occurs primarily by truck between late June and October, could continue under John Day drawdown conditions to the extent that collection of juveniles in the Snake River continued.

3. The Phase I report describes the results of a reconnaissance-level study that is not intended to be comprehensive. Analysis of the effects of the John Day drawdown if the lower Snake River Dams are partially or totally removed is not necessary to meet the goals of the Phase I study.

4. The study report was changed to include (para. 7.7.4) a discussion of benefits associated with timing of adult passage under different drawdown conditions.

5. Survival rate changes reported in Table 35 of the Summary Report and in Table 10 of the Aquatic Resources Technical Appendix are with respect to juvenile migration from above Lower Granite Dam to below Bonneville Dam, not just within the John Day reach alone. Most of the benefits that fall chinook salmon derive from John Day drawdown relate to assumed reductions in losses to predation with decreased travel time. Hence, the potential survival increases reported on page 97 with respect to reduced predation losses are basically equal to the survival benefits reported in Table 35 for fall chinook.

Table 35 only examines relative survival rates for juvenile migrants from above Lower Granite Dam to below Bonneville Dam. The estimated benefits resulting from John Day drawdown that are presented in Tables 37 through 39 consider all aspects of survival throughout the entire life history of the species examined. Those results, based on the PATH life-cycle modeling approach, include incorporation of the potential effects of low transportation effectiveness through the assumption that "D factors" are low.

5. The Corps Fails to Discuss Cumulative Effects of Dams -- The discussion of mortality attributed to dams did not include the effect of cumulative stresses associated with having to negotiate many dams. The study also fails to include a discussion of mortality associated with barging and trucking (i.e., the effect of artificially concentrating fish in high densities that result in transmission of infectious disease). The Corps must include these cumulative affects in its analysis.

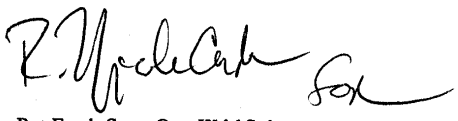
6

6. The Corps Ignores Any Delayed Mortality Associated with the Dams and with Barge & Truck Transportation -- SOS questions the high survival rates identified for bypassing and transporting fish around dams (see, e.g., page 98). Although we understand that there is currently debate about the level of delayed mortality that should be associated with such actions, the Corps seems to completely ignore delayed mortality. By overestimating survival of fish bypassed around dams, and specifically around John Day dam, the effect of drawdown is minimized. A more realistic approach to this aspect of drawdown must be presented to allow for a well-balanced decision.

7

In conclusion, SOS strongly urges the Corps to reassess its recommendation that no further study is needed. The Corps' decision in this regard is neither legally sound nor biological supported. Thank you for the opportunity to comment on the Draft Phase I study of the John Day drawdown. We look forward to the Corps' Phase II study.

Sincerely,



Pat Ford, Save Our *Wild* Salmon
Rob Masonis, American Rivers
Bill Arthur, Sierra Club
Tim Stearns, National Wildlife Federation

Corps of Engineers Response

6. The Phase I report describes the results of a reconnaissance-level study that is not intended to be comprehensive. Analysis of the cumulative effects of all Lower Columbia River and Lower Snake River Dams is not necessary to meet the goals of the Phase I study.

7. The Regionally developed PATH modeling approach was used to estimate potential biological benefits that might result from John Day drawdown, with and without drawdown of the four lower Snake River dams. PATH modeling hypotheses concerning "extra mortality" included one attributing this mortality to effects of fish passage through the Columbia River hydropower system. Under this assumption, benefits of drawdown were maximized because drawdown would contribute to reduction of "extra mortality".

To effect this "extra mortality", a "D-factor" was used in modeling to impart a differential mortality to fish that were transported from the Snake River to below Bonneville Dam, as opposed to those that swam in-river through the system of reservoirs and dams. The D-factor was calculated as the proportional survival difference between transported and non-transported fish, so a lower D value resulted in a larger proportional survival rate for non-transported fish over transported fish.

Under the PATH modeling approach, potential biological benefits from drawdown were estimated for Snake River spring/summer chinook salmon using prospective D values ranging from 0.65 to 0.80 and for Snake River fall chinook salmon using prospective D values ranging from 0.05 to 1.00. Estimated potential benefits from drawdown were highest using D values of 0.65 for Snake River spring/summer chinook and 0.05 for Snake River fall chinook salmon. These are the results reported in the Phase I report.

Recent data from PIT tag studies analyzed by National Marine Fisheries Service suggests that D values may be much higher than those used by the Corps to generate the results reported in the Phase I report. However, for purposes of the Phase I reconnaissance-level study the Corps elected to use modeling results that identified the maximum potential benefits that might reasonably be derived from drawdown.

SCHWABE WILLIAMSON & WYATT P.C.
ATTORNEYS AT LAW

PACWEST CENTER, SUITES 1600-1800
1211 SOUTHWEST FIFTH AVENUE • PORTLAND, OREGON 97204-3795
TELEPHONE: 503 222-9981 • FAX: 503 796-2900 • TELEX: 650-686-1360

WALTER H. EVANS, III
Admitted in Oregon and Washington, D.C.
Direct Line: (503) 796-3731
E-Mail: wevans@schwabe.com

April 27, 2000

VIA MESSENGER

John Day Drawdown Study
U.S Army Corps of Engineers
Tenth Floor
333 S.W. First Avenue
Portland, Oregon 97208-2948

Re: Salmon Recovery through John Day Reservoir:
JOHN DAY DRAWDOWN PHASE I STUDY

Dear Ladies and Gentlemen:

The Inland Ports and Navigation Group appreciates the opportunity to provide comments on the John Day Drawdown Phase I Study ("John Day Study," or "the Study"), in which the Corps of Engineers recommends that no Phase II Study be undertaken. In summary, the Inland Ports and Navigation Group ("IPNG") supports that conclusion, for the reasons set out in detail in the comments below. IPNG strongly urges the Corps to resist urgings by some others inside and outside the government to move to a Phase II Study. Instead, IPNG suggests that the Corps spend the costs of such a Phase II Study on reasonable and productive programs that can improve the outlook for listed species recovery in the short term.

INTRODUCTION

IPNG directs these comments to the Corps and its John Day Drawdown Phase I Study. These comments are submitted to the US Army Corps of Engineers and are directed specifically to their John Day Drawdown Phase I Study issued in January 2000, and consisting of a Study and numerous volumes of supporting appendices.

Earlier, IPNG submitted separate comments to the Federal Caucus regarding the Draft Conservation of Columbia Basin Fish: Building a Conceptual Plan in mid-March, 2000. In a few instances in these comments, IPNG references the role of the Federal Caucus in shaping the broader vision of listed species recovery in the region.

IPNG also submitted detailed comments in late March 2000 to the Walla Walla District Corps of Engineers regarding its document, Improving Salmon Passage: DRAFT: The Lower Snake River Juvenile Salmon Migration Feasibility Report/Environmental

Impact Statement ("Draft Snake Dam EIS" or "DEIS"). Certain sections of those comments are attached to these comments as appendices, and are included by reference for your review.

In addition, the IPNG submitted comments to Bonneville Power Administration on its Proposed Scope of Draft Environmental Impact Statement for Fish and Wildlife Implementation Plan at the end of March 2000. In a few instances herein, IPNG refers to specific comments and goals referenced in its comments to BPA. Those comments are attached as an appendix in hopes to help guide the Corps as it considers wise use of funds to develop a regional consensus supporting listed species recovery programs.

IPNG's comments to the Federal Caucus regarding its All-H Proposed Plan and to BPA for the proposed scope of its EIS both focused on the broader picture of recovery steps that moved away from the hydro-centric approach that has marred the region's approach to recovery of listed fish species.

As a guiding principle, IPNG believes that a true All-H perspective is required if the region is to unite around recovery Steps. Failure to step back from the narrow debate over dam breaching, or the simplistic equation of dams versus fish only will ensure that the region risks a litigation-driven strategy that serves only a narrow purpose. IPNG is committed to listed fish species recovery. IPNG filed over a hundred pages of comments noted above where it focused on numerous programs and initiatives we support to hasten species recovery.

OVERVIEW

IPNG supports the recommendations of the Corps as set out on page 222 of the John Day Study that no further study is required to conclude that the John Day Dam should not be drawn down, and that Phase II of such a study is not merited. JPNG doubts strongly that the public comment period will produce strongly compelling new information to reverse the Corps preliminary recommendation. As IPNG will explain in its comments, the Corps findings and recommendations should end this effort, albeit directed by Congress, and should divert such funds as otherwise would be spent on a Phase II Study, instead, on programs with a great chance to improve species recovery, such as;

- changes at John Day Dam and other dams to improve fish passage, greater habitat restoration, particularly in the estuary and in tributaries,
- committed predation control, both in the estuary and in such areas as Lake Umatilla and at John Day and McNary Dams;
- more ocean temperature and climate cycle research, and
- culvert replacement and similar programs that can unite various factions now divided over the future of dam breaching.

The record developed by the Corps in its John Day Study is imperfect in some areas, particularly in underestimating the severe adverse regional economic impacts of adopting any of the four alternatives examined by the Study. Nevertheless, the Study clearly demonstrates that the economic impact would be severe if the John Day Dam is breached, yet the fish benefits would be minimal. Even the overly narrow and incomplete examination in the appendices presents a sober outlook for the region if the John Day Dam is drawn down. Although this data does not examine a sufficiently broad scope of adverse economic impacts, it is clear that the drawdown will severely impact the upriver region's overall economic health.

We believe that the economic devastation would cut across a broader economic base than the Corps considers, and that it would ripple deeper into the economic fabric than examined in the Phase I Study and detailed in Economic Analysis Technical Appendix: Navigation Section and in the Engineering Technical Appendix Volume 2.

Although it may have been beyond the reach of this Phase I Study, we believe far greater attention should have been given to the scope of the ripple effects on the region's economic if John Day Dam were lowered to natural river.

1

JPNG believes the National Economic Development (NED) model erodes the credibility of the Corps when used within any regional context. Our region does not care whether a job lost in Umatilla County is replaced by a job in New Orleans, so there is "no net loss," per some NED equation or formula. Use of NED often clouds a discussion of the real economic costs. Corps personnel cite NED material-perhaps they have no choice-while the region facing potential economic upheaval is confused and upset by Corps reliance on such a process as NED. We think that greater review is be required in the social impact that produces economic loss. The Corps made a start in this area, but it deserves more work (but not under a Phase II Study).

Navigation above John Day Dam almost certainly would end, absent a massive dredging program that is speculative and is unlikely for several reasons. IPNG believes that, for a number of reasons, navigation is nearly certain to end if any of the four alternatives were implemented. The Corps Study reports on what industry and port executives already know, as do their river customers. Too many expensive variables can block cost-effective water transport after the John Day dam is lowered to natural river, or to spillway. First, dredging is unlikely to take

2

place, for reasons detailed later. Second, a narrow channel with higher velocity currents will mean slower trips upriver and more cautious trips downriver, and will erode the significant cost advantages now enjoyed by barging cargo using current barge tows in all slackwater. Safety concerns, shallower barges, and fewer barges in a tow are raised as options, but are impractical.

Ports and shore facilities will be away from waterside sites, and relocation costs to a new water's edge location will be prohibitive. Existing shore-side infrastructure at ports, grain terminals and other facilities will be of little value if/when the water level is lowered. The Corps discusses these related issues in its Study. Replicating existing

Corps of Engineers Response

1. More detailed studies on specific regional and local impacts would be conducted before a decision was made to lower the John Day Reservoir.

2. A more detailed analysis of navigation would need to be completed before a final decision could be made regarding drawdown. Your comments and concerns regarding navigation and resulting transportation impacts are valid, and would be addressed if a Phase II study is pursued, but are outside the scope of the Phase I study.

2 cont facilities at the water's edge will be very costly, and no one has indicated who would bear such costs, if any of the Alternatives were implemented.

3 *Would dredging to rebuild a navigation channel, and successive maintenance dredging, ever be permitted?* Permitting for any in-water or shore-side work today is difficult and time-consuming, due to ESA-imposed constraints. IPNG believes it would be very difficult to secure required permits to do in-water blasting of rock as would be required to create a channel for barge traffic to use. We believe that ESA-related restrictions, for permitting and for dredging, were not examined in sufficient detail in the Phase I Study. We believe they would create severe hurdles for securing such required permits. Obviously, without such permits, no navigation would take place, even with promises of restoration and with support from the Corps. We are skeptical that the required dredging ever would take place for a number of reasons. For example, dredging would be forced to occur in a window wherein no damage to listed species would occur. In turn, these constraints during dredging windows could extend the time to complete the new channel dredging over a lengthy period, even if it were permitted. IPNG did not see sufficient attention given to the real problems in such new channel dredging, in terms of permits, costs, and delays. We believe it is possible that getting permits approved for such dredging would be difficult, if not impossible. We also see problems in securing required O&M dredging permits.

IPNG opposes any Alternative, any Option, and/or any combination of them that includes dam breaching that the Corps of Engineers or other Federal agencies may propose. IPNG stresses to the Portland District of the Corps concerning the John Day Study many of the same essential arguments it made in comments to the Walla Walla District (re Snake Dam DEIS) and the Federal Caucus (A11-HDraft Plan). Although we oppose dam breaching, both at John Day and also at the Lower Snake Dams, we support many steps to aid in recovery of listed species.

IPNG states in the strongest terms possible that the science today lacks a hil?h enough certainty that breaching JDay Dam will benefit listed fish to any degree that approximates the economic havoc such action will create in the region. We support the Corps recommendation that no Phase II Study be undertaken.

Emotional appeals must not outweigh the scientific uncertainties and economic realities that should guide decision-makers to conclude that too many unknowns remain to support such a risky strategy. IPNG argue strongly that the potential benefits from lowering the John Day Pool are speculative, **at best, whereas the damage from a drawdown** will be certain, deep and far-reaching. Instead of proceeding to a Phase II Study, the region should agree on a number of steps that it could take to produce short-term benefits to the listed fish species.

IPNG has a direct interest, as a "direct and intended beneficiary" of the Federal navigation projects on the Columbia River, in protecting navigation rights at John Day Dam and through Lake Umatilla to McNary Dam and beyond to Lewiston, Idaho. IPNG

Corps of Engineers Response

3. A schedule for dredging of the navigation channel was developed for this study. In-water work restrictions were considered and incorporated into the schedule. Disposal material quantities were calculated however, disposal areas were not identified.

members have navigation rights protected by the US Constitution, by specific acts of Congress and by numerous court cases. Later in these comments, IPNG will discuss these rights in detail. These rights mean that those administrative steps recommended or undertaken by the Corps of Engineers, or other members of the Federal Caucus, must not conflict with these navigation rights.

INLAND PORTS AND NAVIGATION GROUP

IPNG member ports are public entities, created by each Northwest State. The Port of Lewiston, Idaho, is a port district created pursuant to the statutes of the State of Idaho. The Ports of Whitman County, Washington, and other Washington public ports located on the Columbia and Snake Rivers, are municipal corporations of the State of Washington pursuant to Wash. Rev. Code Title 53. The Port of Morrow, Oregon, is a municipal corporation of the State of Oregon pursuant to Or. Rev. Stat. §777.

These ports and other ports on the Columbia/Snake River system between the Port of Morrow, Oregon, and the Port of Lewiston, Idaho, are referred to collectively as Inland Ports and Navigation Group ("IPNG") for the purpose of these comments.

IPNG ports are specifically authorized by their respective states to promote navigation and economic development. These powers are granted to the Washington ports pursuant to Wash. Rev. Code § 85.100. The Oregon ports are governed by Or. Rev. Stat. § 777.003, *et seq.*, and specifically Or. Rev. Stat. § 777.120. This statute confers upon the Port of Morrow, Oregon, a municipal corporation of the State of Oregon, the power to regulate navigation "in the best interests of the maritime shipping and commercial interests of the port . ..."

The Port of Lewiston has been granted broad powers by the State of Idaho including the power to acquire property and to develop facilities and other improvements "relating to industry and manufacturing and to commercial transportation." Idaho Code, §70-1501. As public bodies of their respective states, each of these ports has expended public funds to develop its port facilities.

Each of these public ports is legislatively authorized, and has developed and constructed commercial port facilities designed to load, store, or discharge waterborne commerce on the inland river system on the Columbia and Snake Rivers. These public entities have used public funds to develop these port facilities. Each of these inland ports is a direct and intended beneficiary of the inland waterway system created by Congress. Each port provides cargo handling facilities or services to the tug and barges that carry cargo on the Columbia/Snake River system. Cargo from these ports enters interstate and foreign commerce, and is exported to numerous different foreign countries.

IPNG includes a private towboat and barge company as a member and in these comments. IPNG member Shaver Transportation Company owns and operates tugs and barges on the inland waterway system and conducts operations within and between the port

districts of the Columbia/Snake River system. Shaver Transportation Company is also an intended and direct beneficiary of the inland waterway system. Shaver family members currently operating the company are the fifth generation of their family to provide waterrelated towing services on the Columbia River system.

IPNG purpose: IPNG was formed for two purposes. The first was to intervene in the "Clean Water Act Lawsuit," a case[1] in US District Court in Portland. This case involves environment advocates led by the National Wildlife Federation who sued the Corps of Engineers alleging a violation of the State of Washington's Clean Water Act regulations regarding water temperature and dissolved gas standards at the four lower Snake River dams. In granting IPNG's motion to intervene, the Federal Judge in Portland agreed that IPNG members were "direct and intended beneficiaries" of the Federal dams on the Lower Snake River. These dams have been the subject of considerable discussion over the past two years. We will refer later in these comments to some arguments made in that lawsuit, submitted here for consideration by the Corps in its review of the appropriate next steps for the region in aiding recovery of listed fish species.

The second task for IPNG was to review the draft documents prepared by Federal agencies and distributed for public comment regarding various fish recovery options. Thereafter, IPNG prepared and submitted comments, both in oral summary form at the regional hearings held earlier in the year and in written comments, such as these pertaining to the John Day Drawdown Phase I Study.

SCOPE OF THE ISSUE AND THE REGIONAL DEBATE

We encourage efforts by the Corps and by other Federal agencies to broaden the prism of this debate. More than anything else, the region should move beyond dam breaching to look for "low-hanging fruit" where the region can agree on short-term steps to help restore listed stocks. We suggest some options later in these comments. The degree to which the Corps and the Federal agencies can resist the pressures to keel) dam breaching front and center will help determine whether the region can make progress on the many areas where reasoned negotiated agreements can be reached. This is an overriding reason why the Corps should resist undertaking Phase II of this Study.

A broader vision for species recovery is required to maintain public support for various recovery programs. Studies such as any John Day Phase II Study would erode public confidence that the Federal Government is serious about listed fish species recovery. Instead of spending scarce Federal resources (and BPA ratepayer funds) on real improvements that can strengthen listed species recovery, the fact that Federal Government actually is considering a costly Phase II Study adversely impacts public confidence in the rest of the fish recovery process. Such wasteful spending damages the credibility of the

[1] National Wildlife Federation et al vs. US Army Cori) s of Engineers. US District Court of Oregon, No. 99-442-FR

Federal government as it tries to create critical mass for spending huge amounts of money on recovery steps, many of which are filled with uncertainty.

IPNG repeats a fundamental question: why was the important work and required documentation of the Federal Caucus and its All-H Draft Plan not given the same degree of time, financial commitment, and staff resources as was given preparation of the John Day Study? Why was the Federal Caucus not formed until 1998? Much valuable time was lost by the delay in forming the Caucus to address these larger recovery issues. Although IPNG acknowledges that the All H Draft Plan represents the best efforts of many dedicated civil servants, nevertheless, that Draft Plan was thin gruel when compared to the many more thorough ESA-driven reports, such as the John Day Phase I Study and the Snake Dams DEIS.

Spend scare resources to All-H-related research that is required to fill *in critical gaps in the region's science.* In short, the research required for an effective All-H report-one that includes such recommendations as IPNG made in its detailed comments in mid-March-is where precious federal funds should be spent. These funds should not be spent chasing rainbows to try and justify breaching John Day Dam. Dam-centric myopic attitudes must be replaced by a broader vision of listed species recovery-one that first answers the many unanswered questions about the causes of fish run declines from a full life cycle viewpoint.

Use a representative time frame to evaluate the causes for listed species decline. Scientists also must use a time frame to evaluate fish runs that goes back far enough to encompass the last rainy cycle that many climate experts say we now have re-entered. Fish researchers must not be allowed to narrow their research period to the cyclical dry decade or so from which the region appears to have left.

The All-HApproach, not a John Day Drawdown Phase II Study, is a wiser use of scarce Federal and BPA ratepayer funds. An All-H approach that is not stacked against hydro, as have been various examinations and studies in the past, remains the best hope for the region to develop recovery plans, goals and performance standards that will lead to species recovery. The potential scope of the All-H **Plan is far reaching, and its potential** impact on our region is significant. For that reason, IPNG suggests that the All-H effort has been understaffed, underfunded and resulted from a time frame too short for its necessary workscope. Its product should equal its mandate. For a document whose recommendations may alter significantly the way the region lives and works, it fell short of the mark. At the same time, the final All-H Plan must not be allowed to create such high (and unreachable) benchmarks required for alternatives to dam breaching that dam breaching is or becomes the default result after five or ten years.

Will the All-HPlan offer reachable alternatives to dam breaching, ones the region will embrace and implement, or will the Plan provide a five or ten year drift toward a default breaching alternative? Concerns are expressed by some in the region that the All-H Final Plan will offer the region a slippery slope of alternatives to dam

breaching, with dam breaching as the default position. A focus on performance standards that provide an impossible task for the rest of the Hs does the region a disservice, and will lead to more regional bickering, and to probable litigation by those entities who see through the artifice of such a plan. This will be counterproductive, and will further divide the region at a time in the process when federal agencies should be finding ways to unify the region toward common goals and methods.

IPNG SUPPORTS NUMEROUS SPECIES RECOVERY STEPS

IPNG encourages immediate actions and more focused study in several areas. Throughout these public comment periods over the past several months, IPNG has focused on actions it supports, as well as stressing the flaws of the "dams versus fish" and the hydro-centric fixation of some in the region. This dam-driven claque believes that hydro is the sole villain and the sole savior for the listed runs. Such myopic approaches must stop, and a broader regional full life-cycle approach must prevail. IPNG hopes that the All-H process will lead the region to such a reasoned debate.

IPNG supports short-term steps to move the region toward steps that lead to true fish run recovery. These steps include immediate actions to help fish recovery. They also call for research that will fill in the 'black holes," where insufficient knowledge clouds the race to blame hydro is the sole villain in fish run declines. At the core, answers relating to the critical role of the ocean in fish mortality, and the related role of cyclical climate change, should offset the myopic outlook of some critics of the John Dam and of Snake River Dams.

We support actions that will benefit listed species, and give the region the knowledge base needed before we commit to expensive and restrictive recovery measures that are speculative, at best. The region needs more information before it commits scarce resources on some speculative chase that begins and ends with blaming the dams as the sole cause and sole solution for listed species declines in the Columbia Basin. Such research will narrow the unknowns.

- We support habitat improvements that offer good chances for fish recovery at reasonable costs. Our other written submissions, with excerpts submitted as appendices here, stress one example we encourage the Federal and state agencies to pursue: culvert replacement. We attach as an Appendix to these comments our more detailed discussion of this issue in our comments to the Walla Walla District on its Snake River DEIS.2

2 All Appendices (except IPNG comments directed to BPA) are excerpts from comments in March 2000 the Corps of Engineers from IPNG about Improving Salmon Passal?e: DRAFT: The Lower Snake River Juvenile Salmon Migration Feasibility Report/Environmental Impact Statement. This document is commonly known as the Snake River Draft EIS.

- We want tough action without delay to eradicate or reduce to manageable levels the devastating predation near the mouth of the Columbia River, as well as at and near John Day and McNary Dams and throughout Lake Umatilla. The current lawsuit that blocked Corps efforts this year to redirect terns off Rice Island to another island provides an example of misplaced priorities and divided Federal loyalties. IPNG attaches as an Appendix to these comments a copy of its detailed discussion of the issue of estuary predation control in response to the DEIS. Rapid cormorant growth also kills some 5% of the juveniles that make it to the estuary-some 4.6 million fish in 1998. Cormorant controls also must be increased.

- IPNG wants honest answers to questions from another of the "H"s: High seas. Our region deserves straight talk about the possible adverse impact on fish survival of shifts in ocean temperature and climate change, and how this can put at risk and undo different expensive recovery steps being urged on our region. We also deserve an explanation of how ocean temperature and related changes can improve fish recovery. IPNG attaches a copy of its comments re the DEIS as an Appendix to these comments.

- We support continuing improvements at the dam facilities that improve fish passage, and more research into other promising alternatives in this area. Although measured improvements have been made in this area, we support further steps to improve fish passage survival rates.

- We also think that a "regional" solution must include Canadian interests in harvest.

- We endorse options and alternatives under review that include greater use of transportation of juvenile fish.

- We believe tougher ocean harvest restrictions should be enacted. IPNG attaches its extensive comments to the Corps on its DEIS regarding the added H of High Seas and the Combination H: High Seas Harvest.

Although the IPNG recognizes the narrow scope of the Phase I Study, it believes that further examination should have been given to certain issues that would have strengthened the case against proceeding to Phase II Study. For example:

- The John Day Study does not discuss in sufficient detail the significant level of environmental damage caused in portions of the Basin if the John Day is drawn down, and all upriver navigation is lost. Air pollution degradation in the Columbia River Gorge and east of the Cascades deserves even more attention that it received in the appendices. Although Phase I appendices of the John Day Study include some discussion of this, IPNG believes the Corps understates the degree of air quality and other environmental damage caused by curtailing navigation above John Day Dam.

- Inadequate transportation infrastructure means that alternative transportation options review (rail or truck) omits sufficient discussion of the impact of the seasonal nature of

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4. This study looked only at the effects on air quality related to the loss of hydropower. Transportation related effects would be analyzed prior to any decision to drawdown the John Day reservoir.

cargo shipment downriver, and the resulting adverse impacts of surges in demand on inadequate rail or truck transport as replacement for barge transport.

- We see another "H", Hypocrisy, in groups that tell the public that their only targets for breaching were the four Snake river dams, and yet now criticize the John Day Drawdown study, because they assert that drawing down John Day is critical to fish recovery efforts. IPNG attaches a copy of its more detailed discussion of this matter as an Appendix to these comments.

- Conflicts and divisions in responsibilities of NMFS between ESA enforcement and harvest promotion may be resolved only if NMFS is split into two agencies.

- The reliance of a national economic model underestimates the severe regional impact and substitutes some ethereal and abstract theoretical national model. Such a national model somehow can equate new jobs in Chicago-or New Orleans as an acceptable shift in the national economy, regardless of the impact of job losses in the region or locality.

IPNG believes that failure to step back from the dam-centric criticism of hydro and navigation puts at risk the development of any regional consensus for other fish recovery programs. Throughout these comments, the Corps will find a common theme: we must look at a full fish lifecycle recovery plan. We must create a better knowledge base for important areas where insufficient knowledge keeps us from making informed decisions.

IPNG believes that dam breachinz substitutes emotions for sound economics, and favors uncertain scientific projections over certain economic devastation. Until dam breaching is moved off the table, too much effort on this will drain the region's efforts to reach consensus on other steps that offer more immediate help to listed species. Emotions must not drive decisions, nor, in this case, serve as a basis for further study of the John Day drawdown alternatives.

IPNG believes that the special status given navigation by the US Constitution, Congress and the Courts means that Federal agencies must consider navigation's unique role and rights as it reviews various species recovery options. Later in these comments, IPNG also discusses the unique role and rights of navigation under the Constitution and certain congressional actions in creating the Columbia-Snake River inland navigation channel. It reminds the Federal agencies that certain legal limits may constrain the potential scope of actions that can be taken or implemented by administrative decision.

COMMERCE AND NAVIGATION: IMPORTANT SINCE LEWIS AND CLARK

Inland navigation has been the cornerstone of the Columbia River's many uses throughout the history of the United States. Today, Corps of Engineers dams throughout the Columbia River Basin are multiple use projects. Yet, from the earliest days of this

country, development of commerce and navigation on the river has been a core Federal responsibility. Later in these comments, IPNG discusses the unique qualities of navigation and how these rights throughout US history differ from those of many other interests in the region. Thomas Jefferson and Lewis and Clark, however, first promoted this focus.

Navigation was the first and most important reason for the Lewis and Clark expedition. Many forces from the 19th century shaped the Pacific Northwest, beginning with reports from the Corps of Discovery's expedition that traversed the Snake and Columbia Rivers to and from the Pacific Ocean. The Corps of Discovery had as its core responsibility a water/portage/water link between the Missouri and Mississippi in the East and the Columbia in the West. Water transportation linking these two magnificent rivers was the central task for the Expedition given to Meriweather Lewis by President Thomas Jefferson. In his letter to Lewis in the spring of 1803, Jefferson stressed the real purpose of the proposed expedition:

> .... "The object of your mission is to explore the Missouri river, & such principal stream of it, as, by it's course & communication with the water of the Pacific Ocean may offer the most direct & practicable water communication across this continent, for the purposes of commerce ....
>
> "The interesting points of the portage between the heads of the Missouri & the water offering the best communication with the Pacific Ocean should be fixed by observation & the course of that water to the ocean, in the same manner as that of the Missouri ....
>
> "Should you reach the Pacific Ocean inform yourself of the circumstances which may decide whether the furs of those parts may not be collected as advantageously at the head of the Missouri (convenient as is supposed to the waters of the Colorado & Oregon or Columbia) as at Nootka Sound or any other point of that coast; & that trade be consequently conducted through the Missouri & U. S. more beneficially than by the circumnavigation now practiced .... [3]

Navization also was an essential part of Jefferson's request to Congress in support of the Lewis and Clark Corps of Discovery. Even the confidential message transmitted to Congress by President Jefferson in January 1803 urging Congressional approval for the mission and its cost ($2500) included reference to navigation and

[3] Letter to Meriweather Lewis from President Thomas Jefferson, April 27, 1803, (June 20, 1803). The Essential Documents of American History, compiled by Norman P. Desmarais and James McGovern, Providence College. (Emphasis added.)

commerce. This confidential message did not spell out in detail the true goal of the Lewis and Clark expedition. Much of this document of January 18, 1803, dealt with matters on the borders of the existing US territories. Nevertheless, President Jefferson explained to Congress about the role of navigation and commerce in requesting Congressional approval of the Expedition:

> The following confidential message was received from the President of the United States, by Mr. Lewis, his Secretary.
>
> CONFIDE
> NTIAL
>
> .... It is, however, understood, that the country on that river (Missouri) is inhabited by numerous tribes, who furnish great supplies of furs and peltry to the trade of another nation (i.e.: Great Britain), carried on in a high latitude through an infinite number of portages and lakes, shut up by ice through a long season (i.e.: across Canada) .
>
> .... The commerce on that (i.e.: Canadian) line could hear no competition with that of the Missouri, traversing a moderate climate, offering, according to the best accounts, a continued navigation from its source, and possibly with single portage, from the Western Ocean, and finding to the Atlantic a choice of channels through the Illinois, or Wabash, the lakes and Hudson, through the Ohio and Susquehanna, or Potomac or James rivers, and through the Tennessee and Savannah rivers ....
>
> .... While other civilized nations have encountered great expense to enlarge the boundaries of knowledge, by undertaking voyages of discovery, and for other literary purposes, in various parts and directions, our nation seems to owe to the same object, as well as to its own interests, to explore this, the only line of easy communication across the continent, and so directly traversing our own part of it, The interests of commerce place the principal object within the constitutional powers and care of Congress, and that it should incidentally advance the geographical knowledge of our own continent, cannot but be an additional gratification ....
>
> . . . . The appropriation of two thousand five hundred dollars, for the purpose of extending the commerce of the United States, while understood and considered by the Executive as giving the legislative sanction, would cover the undertaking from notice, and prevent the obstructions which interested individuals might otherwise previously prepare in its way ....

◦ Journal of the Executive Proceedings of the Senate of the United States of America, 1789-1873. Proceedings of January 18, 1803, page 439. (Emphasis and explanations added.)

The past one hundred years has confirmed that navigation has been a core element of development of the Columbia Basin river system. Navigation has been a centerpiece in the region throughout US history. IPNG calls attention to the discussion later in these comments to the Corps of the unique role that navigation plays in this region. Congress and the courts have confirmed this in numerous ways.

These comments remind us-IPNG, the Corps, other Federal government officials, and others in the region-- that the Corps of Discovery set out to determine how commerce between the east coast and the undiscovered west coast could be developed via a water route (and portage) linking the two great river systems. The existing inland waterway developments today link commerce beginning as far from the Pacific Ocean as the upper Midwest.

Congress should consider spending the cost of a Phase II study, instead, on monuments to the heritage of Thomas Jefferson and Lewis and Clark before the 200'h anniversary of their voyage of discovery. Congress should honor water navigation as the key to implementing President Jefferson's vision of waterborne commerce linking the eastern and western United States. Continuing along the trails first traversed by the Lewis and Clark expedition, inland water commerce on the Columbia at the millennium implements the bold vision of President Thomas Jefferson and Lewis and Clark. Today, the water-born commerce serving the communities of Lewiston and Clarkston embodies this vision of these American giants. Equally important, the John Day Dam and Lake Umatilla are a critical element of this system, and should be protected.

Money spent on further study should be directed, instead, to other fish recovery species efforts. In the alternative, however, IPNG suggests that Congress spend the cost of a new Phase II study honoring President Jefferson and Lewis and Clark on the occasion of their sesquicentennial celebration. It would be fitting to honor these great Americans by protecting and promoting their vision of commerce across the Rockies linking the Mississippi and Missouri basins with the mighty Columbia.

NAVIGATION ALMOST CERTAINLY WILL CEASE ABOVE JOHN DAY DAM IF WATER LEVELS ARE LOWERED

Navigation providing barge transport above John Day Dam, in all probability, will end if the pool is lowered to either spillway or to natural river. Although the Corps Phase I Study examines in some detail ways in which navigation might be preserved above John Day Dam if it were lowered to spillway crest or to natural river, IPNG members, including both ports and towing interests, believe it is high unlikely that barging would continue, for a variety of reasons, including cost, safety, competitiveness and the speculative nature of all actions required to make barge transport close to current conditions.

s IPNG acknowledges the historical role in the Columbia River Basin of Native Americans, and realizes that its historical references are to the history of the Unites States.

IPNG supports the conclusions reached by the Corps in its Phase I Study. IPNG sees extremely high hurdles limiting ways in which cost-effective alternatives under which dredging could take place.

IPNG agrees with the Corps' conclusions:

"Post-drawdown port commerce would be impractical for the following reasons:

It would cost several million dollars to relocate the port's facilities and resume operations ....

1 Because of the large cargo volumes that can be transported by barge, the ports and barge lines currently can ship commodities for a much lower cost than other modes of transportation. Under the pre-dam channel configuration, barge capacities would be much smaller. As a result, it would be more expensive to ship by barge than by truck or rail.

Even with a redesigned 14-foot channel, towboats would have to increase horsepower and steering capabilities because of the higher current velocities and sharper channel bends. Also, it would require more time and fuel to navigate the river. Safety would be a major issue for barge traffic as it moves from slack water or canal waterways to open river navigation. These factors would result in increased transportation costs, reducing the profit margins of all parties involved. [6]

Adverse impacts from lowering the John Day Pool below MOP probably cannot be overcome. The pool now operates at approximately 265 feet authorized level. Minimal Operating Pool (MOP) is at 257 feet, providing a 15-foot channel- a foot less than the usual 2 feet of over-dredging. Lowering the pool to spillway height will leave a pool at between 217 and 230 feet. Lowering it to natural river will lower it to 162-165 feet. The spillway height would create a partial narrow pool for 47 miles upriver to MP 263. (The river distance between John Day and McNary Dams is 76.5 miles.) Above MP 263, it would leave a natural river all the way to McNary Dam. A 14-foot deep by 250-feet wide channel is authorized from John Day Dam to Lewiston, Idaho.

The Phase I Study Appendix Examining Navigation Issues reaches sober conclusion as to barging's future after lowering the pool:

"7. CONCLUSIONS AND RECOMMENDATIONS

"Modification for the proposed drawdown of the John Day Reservoir would be required to provide navigation comparable to the current level of commercial and recreational navigation between john Day and McNary Dams. Without dredging,

[6] John Day Study Phase I Report, page 135-136.

the water surface elevation within the channel would drop below levels required for navigation throughout much of the river. Ports and marinas currently in operation would be left with no way to load bares, even if there were in existence a main navigation channel. Modification measures could be taken to contend with some impacts caused by the proposed drawdown. The main navigation channel could be redesigned and dredged to accommodate the barges in use today. However, significant quantities of rock and gravel would have to be removed which may require blasting. Dredging and relocation of facilities could only be accomplished at great cost and over a significant period of time. Many port directors state that relocation of the port facilities is not feasible due to the associated high costs. In addition, the following issues still would need consideration:

Higher current velocities and sharper turns would make navigation less safe less efficient more time consuming, and, as a result, more expensive.

- Some reaches of the Columbia River consist of wide shallow rapids. Durin periods of low flow, it may not be possible to maintain a 14-foot channel through some of these shallower areas, unless all flow could be diverted into the channel.

Navigation through the John Day Reservoir is essential for all navigation interests upstream of McNary Dam.

If navigation upstream of John Day Dam were reduced considerably, it would have a significant impact on the Port of Portland and all supporting industries."[1]

IPNG agrees with these conclusions, and believes that the Cops Study underestimates the difficulty to providing barge transportation after any drawdown. Although it may have been beyond the scope of the Phase I analysis, even with these comments noted above, IPNG believes that the Study and Appendices minimize the severity of the impact, and the difficulty of providing barging after a drawdown to spillway or natural river.

For example, IPNG believes that the blasting could be more extensive, more expensive and, possibly, less successful than the Corps develops in its Study. Modifications would need to be more extensive, and would take longer to complete. We suggest asking Corps' permitting offices about consultations with fellow Federal and state agencies to secure permission to blast rocks in narrow sections of the river above John Day Dam where current ESA listings make such permission more problematic. We suggest that such approval would be difficult to obtain, based on past experience.

[1] John Day Drawdown Phase I Study, Engineering Technical Appendix, vol. 2, page 7-1. (Emphasis added.)

When would new channel construction dredging take place? If it were after the river was lowered (as we presume), then upriver shippers would be deprived of barging during this construction period. Everyone would agree that this would wreak havoc in protecting market share for products now entering world trade through the Columbia River. Delivery of goods to traditional deep draft ports via alternative transportation methods-even if only for a transition period when the necessary dredging would take place-is impractical at best, and counterproductive in the eyes of most experts.

Smaller and shallower barges could well be required for any navigation above John Day Dam after a drawdown. Columbia River barges are constructed for service only on this river system. Different size and types of barges are used on other inland river transportation systems. The current barges might well be ill suited for use in some newly configured John Day pool. If different barges were required, the current barges could well be far less valuable, perhaps obsolete, as they are not built for service elsewhere. Unlike a hopper car or a semi-truck, which are fungible products, Columbia River barges would not be transferred easily elsewhere to another US river system where they could transport other products. Some supporters of breaching John Day Dam (and some analysts) have not grasped the fact that, although rail cars and trucks are fungible, Columbia River barges are not. IPNG presumes that barge companies, therefore, would well have to sell at considerable loss much or all of their existing fleet of Columbia River barges, and, somehow, to finance construction of smaller, shallower, less efficient barges. IPNG doubts that this would occur.

Port of Morrow comments to Corps detailed aspects of economic loss to that community in its earlier comments to the Corps. In April, 1999, the Port of Morrow's Executive Director, Gary Neal, reported in a letter to the Corps that "More than 16,000 jobs and $1.6 billion a year are tied to our local economy based on multiple uses of the river. This is 52% of the economy on the Oregon side of the John Day Reservoir." IPNG urges Corps continued review of the Economic Study jointly funded by the Port of Morrow, the Port of Umatilla, the Port of Arlington and the Oregon Economic and Community Development Department that provides more details as to the economic impact. In addition, IPNG reminds the Corps that this local Study also was limited to cargo in the John Day Reservoir area only, and omitted more general evaluation of the adverse impact from the loss of barge transportation p and down the river.

Relocation costs to a new "water's edge" in a natural river for John Day ports, grain elevators and marinas are so high as to make it unrealistic, and would be too expensive for owners or the public to finance. Some supporters of John Day Dam drawdown ignore the economic realities of leaving ports, grain elevators and marinas high and dry, and some of them glibly discuss "limited public investments" to lessen the impact. IPNG believes it is highly unlikely that public participation in such investments will be forthcoming if the John Day Dam is breached.

Although the Corps Study examines the possibility of new dredging to provide a new navigation channel, IPNG worries that the high costs (as the Corps notes) will make

such dredging impractical, and barge transport above John Dam will cease. We see many complications that impede the chances for such dredging. Even with a newly dredged channel, increased costs to barge companies would threaten the ability to deliver price-competitive goods up and down the river. Stronger tugboat engines, slower movement upstream, greater sensitivity to current velocity moving downstream, greater sensitivity to high wind impacts that could effect vessel movements- the adverse impacts even after dredging are lengthy.

In the Phase I Study and appendices, the Corps refers to comments from towing experts on problems trying to continue barging after a drawdown. IPNG offers to meet with Corps officials to discuss these and other real-world hurdles and problems, if the Corps requires further input on the outlook for barging after a John Day drawdown, prior to deciding about moving to a Phase II Study.

Northwest exporters may well not be able to absorb higher transportation costs and remain competitive in world markets. Even if navigation were provided, the increased costs would be born by the area's shippers, who now compete in global markets and are unable to absorb such costs-except by lowering any profits they would have made. It is the farmer, in the end, who must absorb the much higher transportation costs for agricultural goods. It is very difficult to pass on such increased costs to the buyers, as the cargoes often are agricultural products subject to world price shifts. No John Day area grower or shipper sets the world price for products, and has the ability to pass on to the buyer increased transportation costs. IPNG suggests that the extent of damage to those producers who products enter world markets via the Columbia River system did not receive sufficient attention in the Corps Study, with the result that the economic impacts are underestimated. IPNG believes that cargoes crossing upriver docks and using barge transportation to reach lower river ports where these American exports enter global commerce face a bleaker future than the Study concludes if the John Day Dam is lowered and upriver barge transportation is lost.

JPNG urges the Corps to weigh the negative regional impacts detailed in the Port of Portland transportation study of the loss of upriver barge transportation. That study' measured the damage that loss of barge transportation would have to vessel calls at lower river ports, with the resultant ripple effect throughout the regional economy. This useful addition to the literature was provided to the Corps, in toto, earlier, but it is useful to highlight some of the study's findings, to which PNG subscribes. The study found that, even when limited to Snake River dams, loss of barge transportation if upriver dams were breached and barge transportation was lost could reduce barge and ocean container

e "Breaching the Lower Snake River Dams: Transportation Impacts in Oregon," a report jointly sponsored by the Port of Portland, Oregon Department of Agriculture, Oregon Economic and Community Development Department, and the Oregon Department of Transportation. The study was conducted by HDR Engineering Inc., in association with Ogden Beeman & Associates Inc. and TW Environmental Inc.

shipping operations on the remaining Columbia River system, increase freight transportation costs, and add to highway and rail traffic.

Although the study examined the impact of Snake Dam breaching specifically, IPNG believes that its conclusions are sound when applied to the John Day drawdown. In fact, the impacts will be worse than predicted in that study if all barge traffic were to be lost if the John Day Dam is lowered to natural river.

The study focused specifically on the impacts of dam breaching on the regional transportation system, rather than the broader impacts explored in more detail by Federal entities. If the Lower Snake River dams were breached, the study concluded that:

> Shippers would be forced either to truck their freight further to ports on the Columbia River, or find alternative means of transporting their goods to and from deepwater ocean ports. With John Day Dam lowered so that all upriver barge transport was curtailed, these impacts would be even more severe than the study found, as it presumed loading could occur in the Tri Cities area.
>
> The greatly reduced demand for barge service would result in a potential income loss to the upriver towboat and barge industry of between $4 million and $11 million annually-based on looking at the Snake Dams alone, not all barge traffic above John Day.
>
> After years of working to expand container traffic on the river, loss of barge transportation could result in about 9,000 full export containers annually containers now shipped through the Port of Portland instead being diverted to Puget Sound ports, or other shipping points such as the Gulf of Mexico and the East Coast. Such a loss of cargo from points east of the Rockies also erodes the vision of President Thomas Jefferson and Lewis and Clark to link commerce of the east and the west noted earlier in these comments.
>
> "Two or more ocean container carriers currently serving the Port of Portland may choose to end their Columbia River calls," the report concludes. The report continues by stating that this could "eliminate direct container service to and from South America, Europe and Australia/New Zealand, and could result in reduced container service between Portland and Asia." In turn, less competition might increase rates from those lines that still called on river ports, this making remaining Columbia River products less competitive in world markets.
>
> Shifting the volume of cargo now travelling via barges on the Columbia to rail or truck could overwhelm the existing transportation infrastructure. Specifically, the report concluded that "the existing transportation system infrastructure, both roads and rails, may not be able to provide the same level of service as they do today." IPNG believes that the lower river system would be

overwhelmed to a greater degree than the Port of Portland study indicates, with the result that sales were lost due to inadequate ability to handle it at the ports when transferred to vessels from rail or truck. Again, the study focused on the Snake Dams, so the volume of cargo shifting to rail and truck if John Day Dam is breached increases the probability of overwhelming infrastructure at lower river deep draft ports.

"Agriculture land in eastern Oregon and Washington with yields of less than 45 bushels per acre could be taken out of production due to increased costs for inland transportation of grain." The study concludes. IPNG believes the chances for more acreage to go our of production are higher than the study concludes, and reminds the Corps that this study presumes that the agricultural goods could be transferred top barge at sites on the Columbia.

Economies of scale produced by barge transport of cargo would be lessened, and numerous northwest products might be priced out of markets when transportation costs increased. IPNG cites the relative cost advantages available to barge transport that help regional products compete in world markets. Completely separate from this or a further drawdown study, IPNG urges Congress to urge the Department of Agriculture to examine the price sensitivity of Northwest agricultural products in world markets, and to report to the region how much impact increased transportation costs would have on foreign market share for such exports.

INCREASED ENVIRONMENTAL DAMAGE FROM BREACHING JOHN DAY DAM GIVEN INSUFFICIENT CONSIDERATION

IPNG has focused its effort on the navigation aspects of the issues of breaching John Day Dam, but it is aware of numerous adverse environmental impacts that will result of shifting from clean barge traffic to more polluting forms of transportation. Other environmental degradation also will take place.

Significant environmental damage would result from dam breaching, and the Corps, with help from BPA, should pursue clearer studies addressing some of the unanswered questions. Critics of dams and water transportation minimize or ignore environmental damage that would occur if the John Day pool were drawn down to natural river level. In the Phase I Study, the Corps made a start in this direction, although more work is needed for clearer answers. (By saying that more study is needed for clearer conclusions about environmental damage, IPNG is not endorsing a Phase II Study to examine such issues.). Particularly in the energy area, BPA should take the lead in funding more complete studies as to the adverse regional impact from more air pollution that will result from losing barging as a means of transport.

The Columbia River Gorge Scenic Area will suffer degraded air quality and increased road and rail traffic if barging disappears. We urge Federal agencies to ask the Columbia River Natural Scenic Area officials about the environmental degradation that

would occur if river transportation were removed as a source of cargo movement through the Gorge and replaced by increased truck and rail transportation. **IPNG urges the Federal** Government and the Gorge Commission to examine the added traffic on the highways or rail lines through the Gorge Scenic Area. We urge you to examine the greater wear and tear on existing infrastructure.

A huge increase in demand for rail and trucks will occur if upriver barge transportation is unavailable. We are told that 120,000 added rail cars and some 700,000 semi-trucks would be needed if barging disappeared and the cargo moved via these modes. The staggering number of added trucks or unit trains (100 rail cars each train) will degrade this favorite spot of many Northwesterners: the Columbia River Gorge. The infrastructure will be overwhelmed. In addition, we do not know that this much new equipment even could be corralled for use for this cargo.

Northwest barge cargo requires transportation movement in seasonal surges, and the unique Columbia River barges are ready for the surge, and can absorb it, but fungible rail cars and semi trucks probably cannot to meet this need. Equally important, these cargo movement requirements are not spread over the entire year, but respond to surges in transportation required by specific crops. That number of added trucks and railcars cannot be divided into an equal 12-month average, inasmuch as that this transport capacity is needed in a period when surges in transport demand arise. These issues related to surges in demand deserve far more study than is found in the Corps analysis in the Phase I Study and appendices.

Barges now serving Columbia and Snake River grain shippers fulfil a unique requirement, one that neither rail nor trucks can replace. IPNG refers again to the seasonal nature in transport that causes surges in demand for transport equipment. As noted, these increased rail and truck requirements cannot be averaged into a 12-month year, as they are needed when the crop must be moved into international markets. Such fungible transport equipment is subject to movement throughout the US when it is needed elsewhere. Such road and rail equipment may not be available when it is needed in the Columbia Basin to serve as a barge substitute to move cargo to lower river ports for export. The agriculture community throughout the U.S. often reports on costly delays in securing adequate rail cars at the time they are needed for timely shipment. Adding seasonal demands by Columbia Basin shippers to existing national seasonal shortages could mean delays in shipping PNW cargo that hurts demand, sales, and market share for PNW exports.

Barges used on the river have been built specifically for this market, and so are not shifted elsewhere between downriver demands driven by seasonal surges in deliveries to upriver ports and grain elevators. Rail hopper cars and large semi trucks are not built specifically for this regional trade, and cannot be kept on a year-around basis (as are most barges today) so they will be available promptly when the surge in upriver cargo requires prompt transport downriver.

Because most of the current Columbia River barge fleet was built for this trade alone, the regional towing interests cannot easily shift these barges elsewhere in the US during times of slack demand here. That also translates into the inability to sell these barges for full value for use on some other river system to generate funds to purchase a fleet of newer smaller barges.

Vivid statistics point to an overwhelmed road and rail system through the Gorge and into the lower river ports. Various studies in the past illustrate the problem if barging disappears as a transportation option. Regional research shows that one 3500-ton bare equals the cargo capacity of 35 jumbo hopper rail cars or 134 loads varied by one large semi-truck (910 bushels). One bare tow (of several individual barges) equals 1.4 unit trains (100 rail cars each) or 538 semi trucks. Each Panamax vessel calling at a lower river port takes 60,000 tons of grain. That is 4-5 bare tows, or 6500 rail cars, or 2400 semi trucks. When translated into real world impacts, the damage extends beyond that described ion the appendices to the John Day Phase I Study.

Barges are far more fuel-efficient than these other modes. Degraded air quality will result from the less fuel-efficient movement of cargo. A ton of commodities can move 524 miles by barge on a gallon of fuel. The same product can move only 59 miles by truck on a izallon of fuel, or 202 miles per gallon by rail. When we examine the statements supporting lowering the John Day Dam, we find scant attention to this serious problem. Again, with a narrow, hydro-as-villain outlook, critics ignore the resulting environmental damage caused by dam removal in their misplaced zeal to remove the dams. These critics should remember that water transportation results in'/4 to 1/3 the emissions of rail or truck. Some critics fail to evaluate the decreased efficiency in barges over rail

Before the Corps made the misguided decision to undertake a Phase II Study, IPNG urges in strong terms that the Corps and other Federal agencies solicit the views of the Columbia River Gorge Commission on the potential adverse impact on the Gorge of such increased rail or truck traffic as would be required if the slackwater barge transportation was not available above John Day Dam. The Corps and BPA have heard from others how barge transportation uses less energy and creates less pollution than rail or truck. If needed, it should undertake research that validates these findings.

Severe adverse environmental impacts will result from curtailing barging. IPNG believes that such traffic increases through the **Gorge by rail or truck will be unsafe, and** will degrade the experience visitors now enjoy in this unique area. The increased traffic of unit trains or thousands of semi trucks is easily imaginable. **Both increased traffic and** loss of air quality in the Gorge will result from a loss of barge transportation for cargo. Even the cursory review given in the Appendices to the Phase I Study indicates the damage that would occur without barge traffic.

IPNG believes that the lower river transportation logistics systems are not equipped to handle this shift in modes without a significant capital investment. Securing adequate rail cars anywhere in the Pacific Northwest always is difficult. If the Corps

decides that it needs more information prior to deciding finally on Phase II of the Drawdown Study, IPNG urges the Corps to call upon MARAD and USDOT for assistance in evaluating the impact on such a shift from barge to rail or truck. A dramatic shift from barge to truck, for example, probably would overwhelm transfer facilities at lower river ports. Truck and train traffic increases through Portland might impact its regional air quality to a adverse degree in meeting various airshed air quality standards.

The Corps also should draw on expertise within the USDOT/National Highway Administration, and state highways departments in Idaho, Washington and Oregon. They should examine and report on the adverse impact on highway wear and tear and on traffic congestion and safety-- from Lewiston through the Gorge Scenic Area through Portland and Vancouver to Lower Columbia River ports. What really would happen, in real world terms, without barging?

Separate from this drawndown study, EPA and State DEQs should examine degradation of air quality from increased truck and rail pollution. Experts on river transportation and logistics issues know the energy and freight statistics. It is easy to grasp how highways would be clogged and unsafe if trucks substituted completely for barges in carrying regional cargo to lower river ports for export. Yet, this issue has received insufficient attention. It would help marshal arguments against all dam breaching if the true extent of environmental damage were reported fairly to the public in the Pacific Northwest. Before making a decision to embrace a Phase II drawdown Study, IPNG urges the Corps to engage its fellow Federal agencies for studies on how loss of barging would adversely impact these areas noted above.

Led by BPA, and completely separate from any further John Day Drawdown study, Federal agencies also should study the degraded air quality from greater pollution resulting from gas turbine energy plants needed to make up for energy production lost if water level at John Dam is lowered to natural river level. BPA is uniquely qualified to do this. The hydropower produced by John Day Dam is significant in meeting regional energy requirements. If the dams ever were breached, that power loss must be made up here in the region. Yet the air quality impact from such new energy production-even when clean gas turbine technology is used in modeling, requires more examination before any decision is made to undertake a Phase II Study.

Some critics of dams ignore this potential result of added air pollution from new energy generation, asserting that energy savings will not require construction of such new plants. IPNG disputes such interpretation, in spite of the benefits of past energy saving initiatives promoted in the region. More generating capacity, we believe, will be neededwith or without effective energy savings initiatives.

IPNG members support conservation and alternative energy sources, and the role they might play in meeting our region's growing energy needs. Nevertheless, it is unrealistic to presume, as do some critics, that the loss of some or all of John Day's generating capacity can be made up by conservation, wind power and other green

alternatives, appealing as they may sound. Studies to date that deal with this issue, in our opinion, are incomplete and deserve more focused research.

IPNG believes water pollution impacts from lowering John Day to natural river will be greater than envisioned by the Corps Phase I Study. The first sentence in the appendix discussion of water quality sums up the problem: "Data concerning pollutants in John Day reservoir is lacking."9 This page describes serious adverse consequences that could result of the water levels were lowered as considered in the four options. IPNG does not believe that a Phase II Study is the appropriate way to answer such questions, but believes that such answered questions emphasize the uncertain nature of moving forward with a Phase II Study.

The nutrient section of this appendix acknowledges "temporary but harmful reductions in dissolved oxygen levels due to increased consumption by aquatic microorganisms." It predicts that this may occur "downstream from The Dalles Reservoir where nutrients tend to accumulate." This section of the report indicates that the damage could continue between 2 and 15 years. If the longer and not the shorter time controls, serious damage may occur, including to listed species over such a time period.

PIKEMINNOW AND OTHER UPPER RIVER PREDATION

IPNG urges the Corps to take far stronger and more expansive control measures to limit damage done to juvenile listed fish by northern pikeminnows at or near John Day and McNary Dams and in Lake Umatilla. IPNG has been outspoken in its call for tougher actions to control tern predation near the mouth of the Columbia River, and it echoes this call for stronger predation measures in the regions of John Day and McNary Dams. This is another example of a short-term initiative that should be at the center of immediate responses to the final decision not to proceed to any Phase II Study.

IPNG believes that stronger measures should be taken to control northern pikeminnow, walleye, smallmouth bass and channel catfish predation at or near John Day Dam. In an Appendix to its Phase I Study, the Corps examines such predation, and the conclusions are troubling. Northern pikeminnow predation accounted for 78% of the juvenile fish lost, with walleye (13%) and smallmouth bass (9%) also significant.l° A 1994 study" estimated that 1.4 million smolts are lost annually in John Day reservoir alone. IPNG believes these annual losses probably have increased since 1994.

9 John Day Drawdown Phase I Study, "Engineering Technical Appendix, Water Quality Section," page 10.

to John Day Drawdown Study Phase I Study, "Biological/Environmental Technical Appendix: Aquatic Resources Section, page 59. 11 Peterson, 1994, as noted Ibid.

The Appendix also concludes that drawing down the Jon Day reservoir will mean that "Populations of three of the most influential predators, the northern pikeminnow, channel catfish and smallmouth bass are expected to stay the same or increase slightly under drawdown scenarios.'[12] The appendix concludes that the northern pikeminnow population may double.

IPNG notes that, in spite of this, the Corps concludes that "the hypothesis that favors a reduction in smolt predation with John Day drawdown appears realistic."[13] IPNG questions this conclusion, in view of the increase in population of northern pikeminnow that the appendix concludes may well occur.

CORMORANT PREDATION DESERVES MORE ATTENTION

Before spending more Federal or ratepayer money on risky species restoration projects up-river, the Corps should control the growing cormorant population in the lower estuary, and reduce their serious predation impact on listed species. Cormorant growth in the Columbia estuary has not received the attention that the issue of tern predation has received. (See IPNG Appendix B for our detailed comments on this issue.) Nevertheless, their rapid growth recently on a diet rich in listed species, deserves greater attention and steps to control this growth. Cormorants, once deserving Federal protection due to serious declines in their population, now have rebounded in numbers to the degree that they pose another serious threat to juvenile fish in the estuary. (See a recent article from the Daily Astorian newspaper attached as Appendix B-1 for a further discussion of cormorant predation.)

From a low number of fewer than 100 pairs in 1989 at East Sand Island in the Columbia River estuary, the number of cormorants has skyrocketed to 7000 pairs on the island today. Although not as dependent for their diet on listed species as the terns, they still consume a distressingly high number of juvenile fish. In 1998, cormorants ate some 4.6 million smolts-5% of the total that survive to the estuary. Efforts to control this predation must increase.

Cormorant controls, now teeing discussed by Federal agencies, must he stepped up if the Federal agencies are to maintain puhlic trust. IPNG sees the issue of tern control as one by which the public can measure the commitment to true species recoveryas opposed to research, process, and studies and paper writing.

A number of fewer than 100 pairs was too low for survival, we presume. We are pleased that the species has recovered. IPNG is not prepared to say what the appropriate number should be, but we see no evidence that the number of cormorants is leveling off.

[12] John Day Drawdown Phase I Study, "Biological/Environmental Technical Appendix: Aquatic Resources Section," page 67.

13 Ibid, page 68.

As the number of cormorants (and terns) increases, their impact smolt mortality increases, as well.

IPNG urges Federal officials to take effective steps to control tern and cormorant predation, so that more smolts can pass through the estuary into the ocean. The percentage of smolts eaten by terns and cormorants in the estuary is distressingly high, the undermines support for other major and costly initiatives elsewhere on the river. We urge the Corps and other Federal agencies to recognize that this is damaging in two ways.

First, growing predation erodes and detracts from recovery successes elsewhere in the system. Millions of dollars on system improvements at dams to increase survival can be threatened (or even offset) by estuary predation and predation in the John Day pool. Predation should be a condition precedent to any risky expensive new initiatives for species recovery.

Second, public confidence in other recovery alternatives is eroded by the inability of the Federal government to act to control predation. Although the Corps defended the tern lawsuit, the Corps also should emphasize the adverse economic impact (on other expensive recovery steps) in interagency discussions re protection of the species causing the predation.

The public in the region understands the impact of the terns on smolt survival. IPNG believes that the public will be reluctant to support expensive and risky recovery steps if it believes that the same Federal officials urging such major new recovery initiatives also represent agencies unwilling or unable to control growing predation impact on species survival.

USF&W CITES ADVERSE IMPACTS IF DRAWDOWN OCCURS

IPNG urges the Corps to pay close attention to the comments included in the Planning Aid Letter from USF&W of November 16, 1999, as to the unintended consequences from lowering the John Day pool. Although IPNG focuses most of its attention to navigation impacts from drawing down John Day pool, it believes that USF&W conclusions should be reviewed carefully in discussions about the potential adverse consequences from pursuing this poor idea with further study in a Phase II Study. (IPNG acknowledges that USF&W also reported to the Walla Walla District that lower Snake River dam breaching was best for fish, something its regional director later called a "no-brainer.")

In his letter to Col. Butler, of the Corps, Ronald Garst, for the Oregon State Office of USF&W, notes several adverse consequences, along with that conclusion that drawing down John Day pool may "significantly benefit anadromous fish." For example, USF&W notes:

- "... there could be adverse impacts to aquatic habitat, anadromous fish, wildlife habitat, and wildlife species."

Please provide your comments on the John Day Drawdown Phase I Study!

Upon reviewing the above mentioned study, I can understand the minimal economic gains for the costs involved. Unfortunately you did not include the intrinsic value of the potential loss of all upriver Salmon and Steelhead. Drawing down John Day is a drastic measure. We may need this option sometime in the future if our current and future efforts fail. According to the Endangered Species Act we must do what we can to save the dwindling fish. I believe furthur study is necessary before we abandon this potential tool for saving the magnificent Salmon of the Columbia. 1

(Continue on back if needed)

My mailing address is:

Michael Witthar
PO Box 2038
KETCHUM, ID 83340

Telephone: 208-725-0432

Corps of Engineers Response

1. The estimation of passive use values, such as existence values for salmon and restoration of a section of Free-flowing River, was considered beyond the scope of the Phase I report. Estimation of these types of values was attempted in the Snake River Salmon Migration Feasibility Study, but in the end was not included in the economic impacts. The Independent Economic Advisor Board that did independent technical review of the Snake River study made the following recommendation and this recommendation would also apply to any future John Day analysis. "The passive values should be excluded from the economic analysis for a variety of theoretical and empirical reasons that make it very difficult to make supportable estimates."